

DEPARTMENT OF EDUCATION

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# COURSES *of* STUDY

*for the*

*Public, High, and Normal  
Schools*

*of*

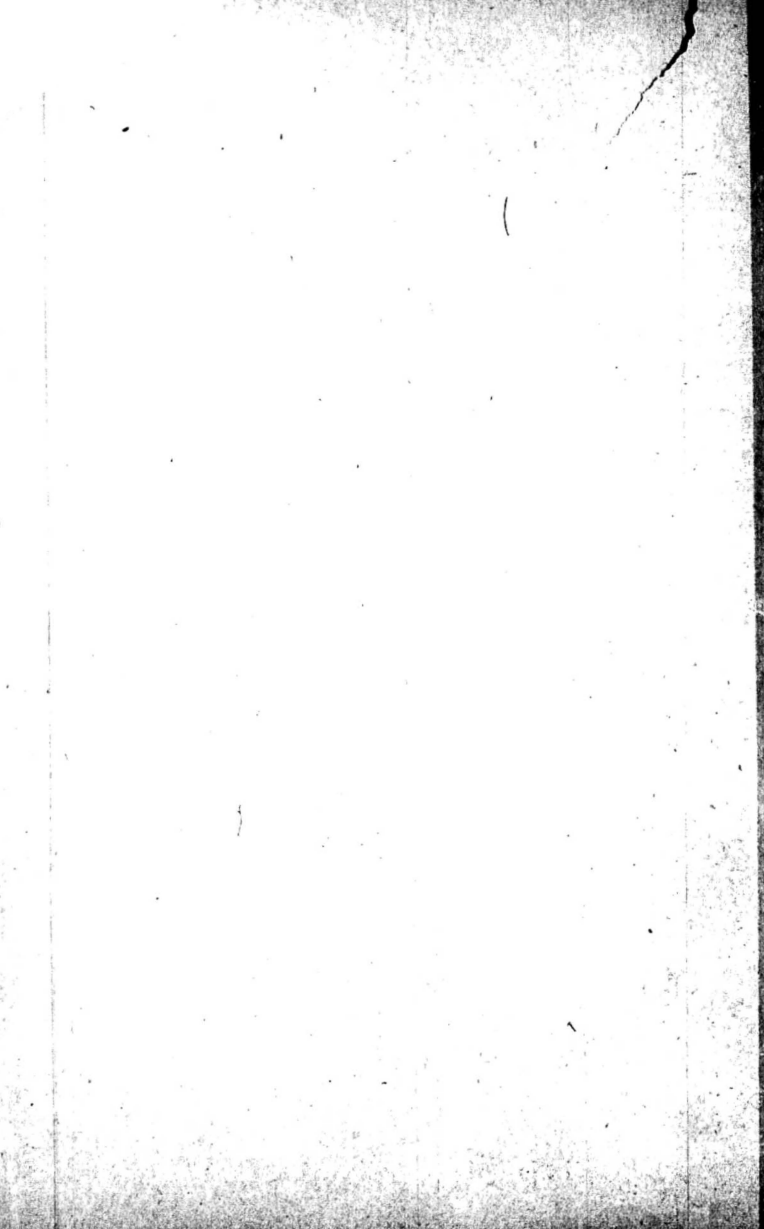
BRITISH COLUMBIA



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# COURSES OF STUDY.

## COURSE OF STUDY PRESCRIBED FOR GRADED AND COMMON SCHOOLS.

### Junior Grade.

#### 1. Reading.

Beginner's Reader, Gage's Phonic Primer, First Reader and Second Reader. Recitation and Supplementary reading from authorized texts. Phonic drill to be continued to the end of the Second Reader.

#### 2. Writing.

Classes in the Beginner's Reader and Phonic Primer and in the First Reader should be taught the correct form of written letters from examples placed on the blackboard. There should also be graded written exercises. Throughout these blackboard lessons the forms of the letters taught should be those given in the prescribed copy-books. Beginner's Reader classes should use New Method Writing-pad No. 1, one per term. Phonic Primer classes should use New Method Writing-book No. 2, one per term. Phonic Primer classes should also use New Method Writing-book No. 1; First Reader classes should use New Method Writing-book No. 2; and Second Reader classes should use New Method Writing-books Nos. 3 and 4. Muscular-movement exercises to be commenced in the Junior Grade.

#### 3. Drawing and Manual Work.

##### PAPER FOLDING AND CUTTING.

*Beginner's Reader and Phonic Primer*—To acquire dexterity and skill of hand by constructing and making objects; to gain a knowledge of the forms, triangle, square, oblong, etc.; to know right side, left side, front, back, edge, corner, angle; to know such terms as turn, fold, etc.; and, in short, to increase the vocabulary of the child and assist the language lesson.

The following book is recommended for the teacher's use: Educational Handwork, T. B. Kidner (published by Educational Book Co.).

##### *Suggested Syllabus from above Book.*

*Beginner's Reader*—First folding exercises, page 18. Stars, page 25. Frames, page 26.

*Beginner's Reader and Phonic Primer*—Second Key form, page 30. Pattern-making, 34, 35. Cutting leaves, fruit, and objects. Cut the crosses of St. George, St. Andrew, and St. Patrick.

*Phonic Primer*—Constructive work, page 42. Patterns 1, 2, 3, 4, 5, 8.

Use some of these exercises for drawing lessons. None of the measurements should be less than half an inch.

Paper Folding and Cutting Materials, No. 204. For Constructive Work, No. 210<sub>2</sub>, Milton Bradley Co.

##### PLASTICINE MODELLING.

The modelling of a sphere, cylinder, cone, cube, prism, and pyramid; and the turning of these type models into objects having similar forms.

##### MAT-WEAVING.

The following book is recommended for the teacher's use: Primary Work. By Wilhelmina Seegmiller. (Published by Atkinson, Mentzer & Grover, Chicago.)

Mat-weaving paper, No. 1110. Weaving-needles, No. 395. Milton Bradley Co.

## DRAWING.

*Beginner's Reader*—Reference books: Text-book of Art Education (Prang), Books I. and II., for use of teacher only.

*Phonic Primer*—Reference books: Text-book of Art Education (Prang), Books II. and III., for use of teacher only.

*First Reader*—Blair's Canadian Drawing Series, Book I.

*Second Reader*—Blair's Canadian Drawing Series, Book II.

## REFERENCE BOOKS.

Text-book of Art Education, Books I. to VII.—Prang.

A Course in Water Colours for the First Eight Years in School—Prang.

Practical Notes on Colour-mixing for School Teachers—By an Expert (Reeves. Price sixpence. London, Eng.).

Monthly Magazine—The School Arts Book. (Price \$1.75 post free to Canada. School Arts Co., 120 Boylston St., Boston.)

Augsburg's Drawing Series, Books I. to VIII. (New edition.)

Nature Study and Fairy Tales—C. I. Dodd (Thomas Nelson & Sons, Edinburgh).

Artistic Handwork in Paper and Cardboard—Rowland (George Philip & Son, London, Eng.).

Teachers should select from the foregoing Course what they consider best suited to the individual requirements of their classes. The full Course in Drawing must, however, be taught in all graded schools. Moreover, the work in Paper Folding and Cutting, Plasticene Modelling, and Mat-weaving must be undertaken in all city schools of the first class, and in all other graded schools where the work is recommended by the Provincial Inspector of Schools. Boards of School Trustees are expected to provide necessary materials.

## 4. Language Lessons.

In connection with the reading of the Junior Grade it is suggested that the pupils form oral sentences containing the new words used in the reading lessons; that there be frequent drills in enunciation, articulation, inflection, and emphasis; that oral and written spelling be begun in the Beginner's Reader classes; that the teachers hold with their classes frequent conversations growing out of observation of pictures, plants, animals, etc.; that there should be frequent oral reproduction of stories read or related by the teacher; memorization of selected passages; the correction of prevailing errors of speech at the time they are made, with drill for the formation of habits of correct expression; that the names of the days of the week and of the seasons of the year be taught as well as the abbreviations and contractions found in the readers; that pupils be taught to divide into syllables the words in their readers and to mark the accent; that pupils in the Second Reader be required to give simple written reproductions consisting of one paragraph only; that there be simple exercises in word-building; that the significance of simple prefixes and suffixes be taught as well as the common use of capitals and punctuation marks; and that there be frequent transcription and dictation exercises.

## 5. Arithmetic.

Milne's Arithmetic Book I., to end of page 156 (for use of teachers only). The following grading of the work for the Junior Grade Course is suggested:—

BEGINNER'S READER. (The *one*-unit.)

- (1.) Study of the numbers 1 to 9 inclusive; teaching the number, names, oral and written, and the figures, with a clear knowledge of their significance; combinations of these 9 numbers (this includes the teaching not only of addition, but also the application of the other three simple rules to these numbers); oral counting to 99.

**PHONIC PRIMER.** (The *ten-unit*.)

- (1.) Study of the *ten-unit*, its meaning and notation, and of the *ten series*, 10, 20, 30, etc., to 90.
- (2.) Reading and writing numbers to 90.
- (3.) Combinations of the numbers 1 to 20.

**FIRST READER.** Milne, Book I., to end of page 54 (for use of teacher only).

- (1.) Extensions of the combinations:
  - (a.) Combinations of the tens, Milne, Book I., page 14, sec. 9.
  - (b.) Such extensions as those found in Milne, Book I., page 12, Part I.
- (2.) Multiplication tables to end of table of fives, with easy oral exercises implying multiplication and division; but no formal multiplication or division to be required.
- (3.) Addition and subtraction within the number limit.
- (4.) Easy fractions and familiar measures as in the section of text-book assigned.

**SECOND READER.** The *hundred-unit* and *thousand-unit*. Milne, Book I., to end of page 156.

- (1.) Reading and writing numbers to 10,000.
- (2.) Review of combinations and extensions, with application to the hundred-unit and thousand-unit.
- (3.) Multiplication tables.
- (4.) Addition and subtraction within number limit.
- (5.) Multiplication and division by one figure.
- (6.) Easy fractions and familiar measures as in text-book.

**NOTE.**—The arithmetic-work of the first two years (of the first year, particularly) should be characterized by the free use of objects, constructive exercises, picture numbers, etc., in order to develop clear number ideas with the aid of sense perceptions. Throughout the Junior Grade the knowledge of numbers should be applied in many and varied concrete problems of a simple kind. These problems should be largely oral. There should also be systematic practice in mental arithmetic in the prescribed course. The text-book should not be placed in the hands of the pupils of the Junior Grade, except in the case of pupils in rural schools, and then only in the case of pupils doing the third-year work outlined above.

References: Primary Arithmetic—McLellan & Ames (The Copp, Clark Co., Toronto); Elements of Arithmetic—Ella M. Pierce (Messrs. Silver, Burdett Co., Boston).

## 6. Nature Lessons (to be correlated with the Language and Drawing Lessons).

(Special outline of Nature Study Course being forwarded.)

## 7. Geography.

(Special outline in Geography being forwarded.)

### Intermediate Grade.

#### 1. Reading.

Third Reader and (for supplementary reading) Progressive Road to Reading, Book IIIA. Recitation and Supplementary Reading.

#### 2. Writing.

New Method Writing-books Nos. 5, 6, 7, and 8. Muscular-movement exercises to be continued in this grade.

#### 3. Drawing.

Blair's Canadian Drawing Series, Book III.

#### 4. Language Lessons.

Language lessons based on the reading lessons. Spelling, meaning, and pronunciation of words, with special attention to word formation.

The division of a composition into paragraphs should be studied from suitable models in the Reader, and the knowledge thus gained by the pupils applied to their own compositions, both oral and written. Special attention to oral reproduction in paragraphs. (This should precede any written composition.) Oral and written reproductions of substance of reading, geography, history, and nature lessons.

Gage's First Steps in English; Lessons 1 to 60, omitting Lesson 56. Emphasis to be laid on the use of language forms in sentences rather than on the teaching of formal grammar.

Universal Spelling Book, Part I., or Public School Speller (Western Canada Series), pages 51 to 112, inclusive.

### 5. Arithmetic.

Milne, Book I., from page 157 to end of book, and Book II. to end of page 145. (Omit pages 121 to 126, except the rectangle.)

The following grading of the work for a two years' course is suggested:—

FIRST YEAR—Milne, Book I., page 157 to end of book.

SECOND YEAR—Milne, Book II., to end of page 145 (omitting pages 121 to 126, except the rectangle).

Requirements at the end of the Intermediate Grade—Accurate and intelligent knowledge of the notation and numeration of numbers, including an intelligent understanding of the system of notation in integers, decimals, and common fractions. Accuracy and reasonable rapidity in operations in addition, subtraction, multiplication, and division as applied to integers, decimals and common fractions. Ability to solve mental arithmetic questions with rapidity and precision.

### 6. Geography.

1. Further study of the earth as a whole—the position of the Equator, latitude, longitude, the Tropics, the Arctic and Antarctic, the relative position of the continents and oceans reviewed.

#### 2. NORTH AMERICA:

##### (a.) Position—

(i.) On the globe.

(ii.) In relation to other continents and to the oceans.

##### (b.) Size. (Comparatively.)

(c.) Shape. (Triangular.) Make some study of the coast-line, teaching some of the more important coast features.

##### (d.) Build—

(i.) Teach important highlands:

(1.) Primary highlands.

(2.) Secondary highlands.

(ii.) Teach Great Central Plain:

(1.) The basin of the Mackenzie.

(2.) The basin of the Nelson.

(3.) The basin of the Mississippi.

(iii.) Teach basin of the St. Lawrence.

(iv.) Teach Atlantic Slope.

(v.) Teach Pacific Slope.

NOTE.—The above will be taught from the globe, the sandboard, plasticene model or relief map, and afterwards from the blackboard sketch, the pupil being frequently referred to and taught to interpret the wall maps. Memory map.

(c.) A series of oral lessons taking the pupils in imagination through the different districts of the continent. In these they see the people at work, learn something of the climate and products of the different districts, and learn the names and location of the great commercial centres. No attempt will be made to teach much concerning the causes affecting climate, but from observation they will learn (a) that nearness to the Equator (latitude) affects climate, (b) that nearness to a large body of water affects climate, (c) that height of land above sea-level affects climate. They will learn the characteristic products of the different districts—wheat on the Canadian prairies; corn and cotton in the Mississippi Valley; lumber and fruit on the Pacific Slope, with tropical fruits farther south. In connection

with these products a commercial centre will be taught. They will thus learn the location of such cities as Victoria, Vancouver, Edmonton, Regina, Winnipeg, Ottawa, Toronto, Montreal, Quebec, Halifax, St. John, New York, St. Louis, New Orleans, and San Francisco.

(f.) The political divisions—Canada, United States, Mexico, and Central America.

3. **BRITISH COLUMBIA**—A careful study of the position of the Province in the Dominion of Canada—its size—build (drainage)—a general idea of its climate, and some of the industries, the chief cities, and some of the more important transportation routes. The drawing of the map from memory.

4. **SOUTH AMERICA.**

5. \***AFRICA.**

6. \***AUSTRALIA.**

7. \***EUROPE.**

8. \***ASIA.**

**NOTE.**—In teaching these continents, follow the above order and the plan suggested for North America, omitting the political divisions. In each case the study will be comparative. Much less time will be spent on these than on North America. The pupils should, however, before leaving the Intermediate Grade, have a clear idea of the position and general build of each continent. They should know something of the great plains, and life on these plains, and be able to locate the great commercial centres of the world.

Although no formal text-book on Geography is prescribed for this grade, each Intermediate Grade teacher is supplied with a copy of "World Relations and the Continents," by Alexander McIntyre, which may be used as a basis for this work. It is not intended that this book be used as a text, but only as an aid in teaching the prescribed course.

The following Geographical Readers are recommended for the teacher's use: Carpenter's Geographical Readers (American Book Co., New York); The World and Its People (Thos. Nelson & Sons, London); Reynolds' Regional Geography (Adams & Chas. Black, London).

\* To be taken during the second year in the grade.

7. **History** (to be correlated with the Geography Lessons).

The objects of the teaching of History in the Intermediate Grade are: To create an interest in the subject; to cultivate a taste for reading it, and, incidentally, to make the pupil acquainted with many of the facts of History that will be of value in his work in the Senior Grade.

This method of treatment is suggested:—

1. The story told by the teacher.
2. Questioning by the teacher leading the pupil to organize and group the facts into paragraphs.
3. Oral reproduction.
4. Written reproduction.

Topics suggested for first year:—

**NORTH AMERICA.**

1. Indian Tribes. (Giving a picture of life in North America before the coming of the white man.)
2. Columbus. (Not to be taken before the pupil has sufficient knowledge of the relative position of the continents to enable him to understand something of the desire of the people of Western Europe to find a shorter path to Eastern Asia.)
3. John and Sebastian Cabot.
4. Cortes and Montezuma. (Not a complete account of the Conquest of Mexico, but two or three stories to give a picture of the civilization of the Aztecs and of the Spanish gold-seekers.)
5. Cartier.
6. Drake.
7. Champlain.
8. Hudson.
9. Pilgrim Fathers.
10. William Penn.
11. Jesuit Missions.
12. Marquette.

13. La Salle.
14. Verendrye.
15. Wolfe.
16. Lord Selkirk.

#### BRITISH COLUMBIA.

1. Capt. Cook.
2. Capt. Meares.
3. Nootka Affair.
4. Capt. Vancouver.
5. Sir Alexander Mackenzie.
6. Simon Fraser.
7. David Thompson.
8. The Gold Rush.

Topics suggested for second year:—

#### THE BRITISH EMPIRE.

##### *In Africa.*

1. Mungo Park.
2. The Dutch Settlements.
3. Livingstone.
4. Stanley.
5. Cecil Rhodes.
6. Lord Roberts.

##### *In Australia.*

1. Capt. Cook.
2. Explorations in Australia. (Sturt & Eyre. One or two lessons only.)

##### *In Europe.*

1. A Visit to the Early Britons.
2. The Coming of the Romans.
3. A Visit to Roman Britain.
4. The Coming of the English.
5. A Visit to an English Village.
6. The Introduction of Christianity.
7. The Vikings.
8. Alfred the Great.
9. A Visit to Normandy.
10. The Norman Conquest.
11. A Visit to a Norman Castle.
12. A Tournament.
13. Richard of the Lion Heart.

NOTE.—The teacher will find material for these lessons in "Highroads of History," Book 4; also in "The Story of the British People" (Copp, Clark Co., Toronto).

##### *In Asia.*

1. Clive.
2. Hastings.

NOTE.—No attempt will be made to deal exhaustively with the biographies and topics suggested. They must be presented in such a way as to arouse the interest of the children. In dealing with the various biographies, the aim will be, not so much to teach the facts connected with the man's life, but to present a vivid picture of the times in which he lived and thus cultivate the imagination of the child.

Throughout, wherever possible, the History and Geography of this grade must be correlated. Thus, while studying the basin of the Mackenzie River in Geography, the lesson in History will be on Sir Alexander Mackenzie, and while studying the basin of the Columbia River the History lesson will deal with David Thompson.

Although no formal text-book is prescribed for this grade, yet the use of a carefully selected supplementary Historical Reader, such as the *Highroads of History*, may be used with advantage after an interest has been aroused by the oral lessons.

The following books will supply the teacher with much of the material:—

- Gateways of History (Edward Arnold, London).
- Highroads of History (Nelson & Sons, London).
- Canada: The Empire of the North—Laur (Ginn & Co.).
- Cortes and Montezuma—Pratt (Educational Book Co.).
- Johnson's French Pathfinders in North America.

**8. Nature Lessons.**

(Special outline of Nature Study Course being forwarded.)

**Senior Grade.****1. Reading.**

Fourth Reader complete.

**2. Literature.**

Scott's *Lady of the Lake* and the following selections from the Fourth Reader:—*Recessional*; *The Sermon on the Mount*; *The Battle of Marston Moor*; *The Battle of Naseby*; *Burial of Sir John Moore*; *Heroes of the Long Sault*; *Jacques Cartier*; *The Vision of Mirza*; *Sir Galahad*; *A Dirge*; *Westminster Abbey*; *In Westminster Abbey*; *Lead, Kindly Light*; *The Duty of Canadians*; *The Patriotic Dead*; *The House Fly*; *To a Water-fowl*; *The Daffodils*; *The Lady of Shalott*; *The Panthers*; *Pontiac*; *Lobo, The Wolf*; *The Burial of Moses*; *The Chambered Nautilus*; *The Red River Voyageur*; *Boadicea*; *The Cloud*; *Hamlet's Soliloquy*; *Portia's Appeal to Shylock*; *Twenty-third Psalm*; *Labour*; *In Memoriam*.

MEMORIZATION—*Lady of the Lake*:—

Canto I.—Sections I., II., XI., XII., XIV., XV., XVIII., and XXXI.

Canto II.—Section XIX.

Canto III.—First stanza of Section I., Sections II., XIV., and XVI.

Canto V.—Section XII.

Canto VI.—Section XV.; and the last three stanzas of the Canto beginning "Harp of the North, farewell!"

Fourth Reader: *Recessional*; *The Charge of the Light Brigade*; the last eight lines of "The Sermon on the Mount"; *Burial of Sir John Moore*; one stanza of "Sir Galahad"; *A Dirge*; last nineteen lines of "In Westminster Abbey"; *Lead, Kindly Light*; ten lines beginning "But I hope . . . without boasting" from "The Duty of Canadians"; *The Patriotic Dead*; *To a Water-fowl*; *The Daffodils*; one stanza of "The Chambered Nautilus"; *The Red River Voyageur*; first stanza of "The Cloud"; *Portia's Appeal to Shylock*; *Twenty-third Psalm*; three lines beginning "Blessed is he who has found his work . . . follow it;" from "Labour"; *New Year Eve*, from "In Memoriam."

**3. Writing.**

\*The muscular-movement system of writing is to be continued, the aim being to obtain freedom of execution combined with legibility.

Daily lessons in writing should be given, and care should be taken by the teacher to see that in every written exercise executed by the pupils a consistent and sustained effort is made to carry out the principles involved in the muscular-movement system.

**4. Drawing.**

Blair's *Canadian Drawing Series*, Books IV. and IV.A. (Third Edition).

**5. Language Lessons.**

British Columbia Public School Grammar (Lang.).

(No formal parsing is required, nor should the analysis of greatly involved sentences be undertaken.)

Sykes' *Elementary Composition*, pages 1 to 100, inclusive (but omit the memorization exercises, the *Stories (Themes)*; loose, periodic, and compromise sentences; balanced sentence, continuity, explicit reference, parallel construction, transition, proportion, rhythm, and climax).

Compositions on topics selected from prescribed work and from other sources. (The work should be carefully discussed and planned in class before the pupils are asked to write. Unless this is done, and unless the subjects are well chosen, it is useless to expect good results.)

Pronunciation, spelling, and meaning of ordinary words of text-books, including marking of accents and vowel-sounds.

Oral and written reproductions of substance of reading, literature, geography, history, and nature lessons.

Universal Spelling Book, Parts I. to VII., inclusive.

Or

Public School Speller (Western Canada Series), pages 113 to 168, inclusive.

## 6. Arithmetic.

✓ Milne, Book II., page 146 to end of book, and Book III. with the following omissions: Pages 116 to 134, inclusive; from section 273, page 160, to page 174, inclusive; examples 21 and 22, page 182; page 183; exercises 1 to 15, inclusive, page 203; problems on page 206; from section 385, page 230, to page 234, inclusive; pages 238 to 241, inclusive; from beginning of section 407, page 245, to the end of page 247; last eleven problems on page 249; pages 265 to 296, inclusive; pages 302 to 312, inclusive; from beginning of section 564 on page 314 to the end of section 573 on page 316; pages 319 to 330, inclusive.

All problems in the general review, pages 331 to 342, inclusive, based directly upon the work herein indicated, must be regarded as work prescribed.

The following grading of the work for a two years' course is suggested:—

FIRST YEAR—Milne, Book II., page 146 to the end of the book.

SECOND YEAR—Milne, Book III., with omissions as stated above.

(To secure clearness of reasoning and accuracy of statement much oral teaching is necessary. At least twenty minutes of the time devoted daily to this subject should be taken up with oral class instruction.)

## 7. Geography.

✓ Dominion School Geography, B.C. Edition (Part I. should be studied and considered, as far as possible, in connection with the presentation of related matter in the lessons of Part II.); also Lawson & Young's History and Geography of British Columbia, revised edition (W. J. Gage & Co.).

A general knowledge of the geography of the Continents and Oceans; Geography of British Columbia and Canada more particularly. Sketch-maps of British Columbia, Canada, North America, South America, Asia, Africa, Europe, and Australia.

Great accuracy in drawing sketch-maps is not expected. The drawing of elaborately finished maps at home is of little value and can in no way take the place of the training which the teacher should provide through blackboard illustration and class-room instruction. These maps should show such matters as the chief coast features, drainage basins and divides, the locations of large seaports, and of other important centres of population. Geographical statistics might also be given. For example, the map of North America might indicate the large wheat-growing area, the corn belt, the cotton belt, and one or two other important areas, with the products for which each is noted.

## 8. English History.

As in the prescribed text-book (Symes & Wrong).

NOTE.—The High School Entrance Examination on this subject will be confined to the Tudor, Stuart, and Hanoverian Periods.

## 9. Canadian History.

As in the prescribed text-book (Gammell).

NOTE.—The High School Entrance Examination on this subject will be confined to the Period of British Rule.

Finger-posts to British History (Thomas Nelson & Sons) will be found an excellent teacher's aid in British History.

NOTE.—Care must be taken at the beginning of the work in the Senior Grade to teach the pupil how to study from the book. Up to this time his history has been entirely oral. He must now be taught the art of studying the facts for himself from a text-book.

**10. Nature Study.**

- (a.) (Special outline of Nature Study Course being forwarded.)
- (b.) How to be Healthy.

**11. Manual Training and Domestic Science.**

For High School Entrance requirements in these subjects, *see* pp. 28-34

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**PHYSICAL TRAINING.**

The Education Department has accepted the conditions of the Strathcona Trust for the encouragement of physical training in the Public Schools. Regular and systematic instruction in physical training, according to the syllabus laid down in the prescribed text-book (Syllabus of Physical Exercises for Schools, published by the Executive Council, Strathcona Trust), is compulsory.

Every Special Teacher or Supervisor of Physical Training must hold at least the Certificate of Physical Training Instruction issued by the Militia Department in accordance with the regulations approved by the Executive Council, Strathcona Trust. Qualified teachers must give instruction in this subject to their classes daily.

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**MUSIC SYLLABUS.**

The music period should be one of pleasure and enthusiasm for both teacher and pupil. A careful and wise training will inculcate a love for good music, will produce competency in sight-reading, and result in the well-rendering of songs.

A few children—far fewer than is generally supposed—have what is called a “bad ear” for music. That is, they do not readily distinguish between one musical sound and another; but it can safely be said that quite 99 per cent. of children can with patience and perseverance cultivate a “good ear” and learn to sing with pleasing voice.

Too much stress cannot be laid on the importance of “soft” singing. When the singing is soft, there is no risk of straining or injuring the voice.

Children should be trained to sing alone. It is a great mistake always to practice children collectively. If they were so taught ‘o read and recite it would be hopeless to expect correct articulation and intelligent phrasing.

To sing intelligently it is necessary, first, to phrase correctly; secondly, to sing with expression. To phrase correctly means, roughly speaking, to take breathing in the proper places. To sing with expression children must be encouraged to put themselves into their music; for if they sing what they feel, those who listen will feel what they sing.

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**Beginner's Reader.**

1. To imitate the teacher's pattern in sol-fa-ing simple phrases of three or four notes (individual work).
2. To sol-fa from the hand-signs, the tones of the Doh Chord, in any order, and in several keys; this to be preceded by song sentences.
3. To sing sweetly and softly, songs with and without action.
4. Rhythm to be taught by swinging, clapping, etc.
5. Singing games.
6. To imitate the teacher's pattern in sol-fa-ing simple phrases of three or four tones (individual work).
7. To sing the Doh Chord by leaps and the other notes of the scale in step-wise succession, by *hand-signs*.
8. Song-sentences, including all notes of scale (individual work).

**Phonic Primer.****1. Voice-training.**

(a.) Simple breathing exercises.

(b.) Simple voice exercises.

Exercises to be sung softly, with pure tone, careful attention to vowel-sounds and pitch. Exercises to be taken to syllables, loo, koo, oo.

**2. Tune.**

(a.) To sol-fa from the teacher's pointing on the *Modulator* and from *hand-signs* the tones of the Doh Chord in any order, and the other tones of the major diatonic scale in step-wise succession.

(b.) To sing *simple* exercises in the Staff Notation.

**3. Time.**

(a.) To know the values of the whole note, half-note, and quarter-note. To monotone exercises to time-names and syllable "doh."

(b.) Time ear tests.

**4. Time and Tune.**

To sing short "study" songs to syllables, lah, and words.

**5. Ear-training.**

(a.) To recognize notes of the Doh Chord.

(b.) To imitate the teacher's pattern in sol-faing simple phrases of three or four tones (individual work).

**6. Rote-songs.**

Songs can be patterned from *Modulator*.

Songs with and without actions.

**7. Rhythmic Writing.****First Reader.****1. Voice-training.**

(a.) Simple breathing exercises.

(b.) Simple voice exercises.

Attention given to soft, sweet tone, vowel-sounds, and pitch. To be worked individually.

**2. Tune.**

(a.) To sing to the syllable *lah* from the *Modulator*, exercises containing the tones of the Doh Chord in any order, and the other tones of the diatonic major scale in step-wise succession.

(b.) To sol-fa from the *Modulator* exercises containing the Doh and Soh Chords in any order and fah and lah in step-wise succession.

(c.) To sol-fa from the Staff *Modulator* exercises in various keys.

**3. Time.**

(a.) To sing to time-names and to doh, exercises containing the whole note, half-note, quarter, eighth, and rests.

(b.) Time ear tests.

**4. Time and Tune.**

To sing to syllables and to lah, short "study" songs.

**5. Ear-training.**

(a.) To tell the name of any tone of the major scale sung to lah, the tones of the Doh Chord being first sol-faed by the teacher.

(b.) To imitate and sing from dictation as in First and Second Primers.

**6. Theory.**

To answer any question on the notation and mental effects of tones taught.

**7. Songs.**

To sing to words in correct tune and time, and with good expression, songs in unison.

**Second Reader.****1. Voice-training.**

(a.) Simple breathing exercises.

(b.) Simple voice exercises.

These exercises should be practised daily in accordance with the principles described in First Reader.

**2. Tune.**

(a.) To sol-fa from the Modulator, and sing to "lah" exercises containing any ordinary intervals of the diatonic major scale.

(b.) To learn "fe" and "fa."

(c.) Staff Modulator drill in all keys.

**3. Time.**

(a.) To sing to time-names and to doh, time exercises containing the whole note, half-note, quarter, eighth, and dotted quarter with eighth.

(b.) To have practice in putting in the bar lines to simple unbarred exercises, and in naming the time of passages sung to swinging.

(c.) Time ear tests.

**4. Time and Tune.**

To sing to syllables and to lah, short "study" songs.

**5. Ear-training.**

(a.) To tell the names of any tone of the major scale and to write it on the black-board.

(b.) To imitate and sing from dictation, phrases of three or four notes.

**6. Theory.**

To answer questions on the notation.

**7. Songs.**

To sing in correct time and tune, and with good tone and expression, songs in unison.

**Third Reader.****1. Voice-training.**

(a.) Breathing exercises.

(b.) Voice exercises.

These exercises should be taken daily. The "head voice" must be encouraged; the "forced chest voice" must not be allowed. Simple exercises on the good singing vowels should be taken individually.

**2. Tune.**

(a.) Sharp Modulator practice in all keys from the Staff Modulator, using syllables and lah.

(b.) To sol-fa from the Modulator, exercises containing minor mode phrases introducing l se l; me ba se lah.

**3. Time.**

To sing to time-names and to doh, exercises containing the whole note, half-note, quarter, eighth, sixteenth, dotted quarter with the eighth, and dotted eighth with the sixteenth.

**4. Time and Tune.**

Short study songs sung to syllables, lah, and words.

**5. Ear-training.**

To write or tell ear tests containing three or four tones, including easy leaps, on the tones of the Tonic Chord.

**6. Theory.**

Formation of scale, key, and time signatures.

**7. Songs.**

Unison songs to be committed to memory.

Two-part exercises introduced.

**8. Major and Minor Chords.**

Major  $\begin{cases} s & d & f & s \\ m & l & t & m \\ d & f & s & d \end{cases}$

Minor  $\begin{cases} l & t & m \\ f & s & d \\ r & m & l \end{cases}$

**Fourth Reader.****1. Voice-training.**

(a.) Breathing exercises.

(b.) Exercises on the singing vowels.

Special attention to the singing of vowels and consonants.

**2. Tune.**

Sharp practice on the Staff Modulator daily to "lah" in all keys.

**3. Time.**

A review of the work taken in the lower grades.

**4. Time and Tune.**

Short "study" songs for sight-reading.

**5. Ear-training.**

Phrases played or sung by teacher to be written in manuscript books.

**6. Theory.**

Written answers to questions relating to notation, key, and time signatures.

**7. Songs.**

Unison and two-part songs. A three-part song might occasionally be taken.

**8. Original Melodies.****Entrance Class.****Voice-culture.**

Continued practice on the singing vowels.

**Songs.**

Solo-singing to be encouraged.

**Study.**

Bass Clef to be introduced to boys (sung an octave higher than written).

**Text-book.**

New Educational Music Course, First Reader and Second Reader, Canadian Edition (Ginn & Co.).

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**NEEDLEWORK COURSE.**

Accuracy in each step must be the ruling thought in every grade. Insist on clean hands, keeping material clean and workboxes in good order. Avoid tedious descriptions of, and reasons for, mechanical processes.

A Needlework Course should be built up from the following and be preparatory to the Course in Cookery:—

**First Reader.**

Even basting, uneven basting, running stitch, chain stitch, cross stitch, blanket stitch. Free cutting from paper-folding method of simple garments of various sizes—e.g., caps, bonnets, blbs, etc.

**Second Reader.**

Stitching, back stitch, combination stitch, hemming stitch, overhanding stitch, French seam, flat fell seam, herringbone stitch, feather stitch. Free cutting from paper-folding method of simple garments for children of different ages.

**Third Reader—Junior.**

Overhanding, buttonhole stitch, hem stitch, damask seam, flannel seam, making cookery outfit (pot-holder, towel, sleeves, apron, cap). Free cutting and making of garments.

**Third Reader—Senior** (25 hours during the school-year). (In conjunction with work in Cookery.)

A selection of exercises from the following:—

Hemstitching, buttonholes, household sewing, pillow-slips, towels, etc. Making and repairing kitchen linen. Patching, darning. Free cutting continued. Knitting.

**Fourth Reader—Junior** (25 hours during the school-year).

Draughting, free cutting and making undergarments. Repairing, patching and darning flannels, prints, and coloured goods. Knitting.

**Fourth Reader—Senior** (25 hours during the school-year).

Cutting and making undergarments or High School outfit. Repairing table linen, mending and darning of outer garments, gloves, etc.

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**LIST OF AUTHORIZED TEXT-BOOKS FOR PUBLIC SCHOOLS.**
**Readers, etc.**

British Columbia Beginner's Reader (W. J. Gage & Co., Toronto).

British Columbia Phonic Primer (The Educational Book Co., Toronto).

British Columbia First Reader (W. J. Gage & Co., Toronto).

British Columbia Second Reader (W. J. Gage & Co., Toronto).

British Columbia Third Reader (W. J. Gage & Co., Toronto).

British Columbia Fourth Reader (W. J. Gage & Co., Toronto).

Scott's Lady of the Lake," annotated by O. J. Stevenson (The Copp, Clark Co., Toronto).

**Supplementary Readers.**

- Art Literature Readers, The, Primer, First and Second Books (The Educational Book Co., Toronto).
- Britannia History Readers, Stories from British and Canadian History (The Copp, Clark Co., Limited).
- Child Life Readers, The, Primer, First and Second Readers (The Macmillan Co., New York).
- Country Readers, The, Books I., II., and III., edited by H. B. M. Buchanan (The Macmillan Co., New York).
- Folk-Lore Readers, The, Primer and Book I. (The Educational Book Co., Toronto).
- Heart of Oak Books, Books I. and II. (The Educational Book Co., Toronto).
- Highroads of Literature, The, Introductory Book, and Books One, Two, Three, and Four (Thomas Nelson & Sons, London).
- Hiawatha Primer, The (Houghton, Mifflin & Co., Boston).
- Literary Readers, Teachers' Manual and Books 1, 2, and 3—Field & Young (Ginn & Co., Boston).
- Literature Readers, Books I. and II. (Thomas Nelson & Sons, London).
- Little Red Hen, The, Book II. (Educational Publishing Co., Boston).
- Just a Little Girl, for First Reader—Alice Ashworth (Frederick Warner & Co., New York).
- Progressive Road to Reading, Books I., II., III., and IIIA. (The Educational Book Co., Toronto).
- Royal Prince Readers, Books I., II., III., IV., and V. (Thomas Nelson & Sons, London).
- Stories from Grimm, Books I. and II. (Thomas Nelson & Sons, London).
- Sundowner Babies' Primer (Rand, McNally & Co.).

**Spellers.**

- Public School Speller, The (The Copp, Clark Co., Toronto).
- Universal Spelling Book (The Educational Book Co., Toronto).

**Writing.**

- First Primer: New Method Writing Pad No. 1 (Educational Book Co., Toronto).
- Second Primer: New Method Writing Pad No. 2; New Method Writing No. 1 (Educational Book Co., Toronto).
- First Reader: New Method Writing No. 2 (Educational Book Co., Toronto).
- Second Reader: New Method Writing Nos. 3 and 4 (Educational Book Co., Toronto).
- Third Reader: New Method Writing Nos. 5, 6, and 7 (Educational Book Co., Toronto).
- Fourth Reader: Copy-books Nos. 8 and 9 (W. J. Gage & Co., Toronto).
- Teaching Writing, Manual for New Method Writing Books 1-4 (Educational Book Co., Toronto).

**Grammar and Composition.**

- British Columbia Public School Grammar—Lang (The Copp, Clark Co., Toronto).
- Elementary English Composition—Sykes (The Copp, Clark Co., Toronto).
- First Steps in English (W. J. Gage & Co., Toronto).
- The Royal English Dictionary (Thomas Nelson & Sons, London).

**History and Geography.**

- History of Canada—Gammell (W. J. Gage & Co., Toronto).
- Canadian Civics—for use of Teacher only (The Copp, Clark Co., Toronto).
- An English History—Symes and Wrong (The Copp, Clark Co., Toronto).
- Dominion School Geography, B.C. edition (The Educational Book Co., Toronto).

History and Geography of British Columbia, revised edition—Lawson & Young (W. J. Gage & Co., Toronto).

World Relations and the Continents—McIntyre.

\* Royal Atlas for Canadian Schools (Thomas Nelson & Sons, London).

† Wall Maps (W. & A. K. Johnson, London).

Recommended for teachers' use:—

Highroads of History (Thomas Nelson & Sons, London).

Gateways of History (Edward Arnold, London).

Story of the British People, The (The Copp, Clark Co., Toronto).

Canada: The Empire of the North—Lunt (Ginn & Co., Boston).

Cortes and Montezuma—Pratt (Educational Book Co.).

French Pathfinders in North America—Johnson.

Finger-posts to British History (Thomas Nelson & Sons, London).

Geographical Readers—Carpenter (American Book Co., New York).

World and its People, The (Thomas Nelson & Sons, London).

Regional Geography—Keynolds (Adams & Chas. Black, London).

Our Home and its Surroundings (Morang Educational Co., Toronto).

#### Arithmetic and Book-keeping.

Progressive Arithmetics, Books I., II., III.—Milne (Morang Educational Co., Toronto).

Business and Social Forms, being Nos. 8 and 9 of Gage's Natural Slant Copy-books (W. J. Gage & Co., Toronto).

Recommended for teachers' use:—

Primary Arithmetic—McLellan & Ames (The Copp, Clark Co., Toronto).

Elements of Arithmetic—Pierce (Silver, Burdett Co., Boston).

#### Nature Studies.

Elementary Agriculture and Nature Study—Brittain (The Educational Book Co., Toronto).

How to be Healthy—(The Educational Book Co., Toronto).

Agriculture—James (Morang Educational Co., Toronto).

Recommended for teachers' use:—

Nature Study and Fairy Tales—Dodd (Thomas Nelson & Sons, London).

#### Drawing.

Blair's Canadian Drawing Series (Third Edition), Books I., II., III., IV., IVA. (The Copp, Clark Co., Toronto).

Recommended for teachers' use:—

Text-book of Art Education, Books I. to VII. (Prang).

A Course in Water Colours for the First Eight Years in School (Prang).

Practical Notes on Colour mixing for School Teachers (Reeves & Sons, London).

School Arts Book, The (monthly magazine) (School Arts Co., Boston).

#### Manual Arts.

Recommended for teachers' use:—

Educational Handwork—Kidner (Educational Book Co., Toronto).

Primary Work—Seegmiller (Atkinson, Mentzer & Grover, Chicago).

Artistic Handwork in Paper and Cardboard—Rowland (George Philip & Son, London).

#### Music.

New Educational Music Course, including the First and the Second Readers of the Canadian Edition (Ginn & Co., Boston).

Song Reader, The, Canadian Edition (Ginn & Co., Boston).

\* Optional.

† Recommended for use.

**Physical Exercises.**

Syllabus of Physical Exercises for Schools.

**HIGH SCHOOL COURSES OF STUDY.****Preliminary Course, Junior Grade.****A.—English.**

1. **READING AND ORTHOEPY**—Oral reading, with special attention to expression and pronunciation. Prescribed text, Fifth Reader.

2. **WRITING AND SPELLING**—Legibility and precision in writing and accuracy in spelling will be required in manuscript-work of all subjects.

3. **ENGLISH LITERATURE**—A careful study of the Fifth Reader; Scott's *Ivanhoe*.

4. **COMPOSITION**—Sykes' *Elementary Composition*; Letter-writing; Essays and Themes.

**B. History.**

Grant's *Canadian History* (Renouf Publishing Co.) and Jenkins' *Canadian Civics*, British Columbia Edition (The Copp, Clark Co., Toronto).

**C.—Mathematics.**

1. **ARITHMETIC**—Pure and commercial arithmetic, as in Milne's *Arithmetic*, Book III.

NOTE.—Ordinary High School students will complete the subject of Arithmetic at the close of the first year, but Commercial students will take a Two years' Course.

2. **ALGEBRA**—The first sixteen chapters of Hall & Knight's *Elementary Algebra*.

Or

Crawford's *Algebra* (The Macmillan Co. of Canada), Chapters I. to VII., inclusive, as well as Chapters X., XII., and XVII.

3. **GEOMETRY**—Hall & Stevens' *School Geometry*, pages 1 to 55, inclusive; and *Practical Geometry*, pages 60 to 85 of the same text. These limits refer to both the London and Canadian editions of this text.

**D.—Classics.**

Students who choose one of the science options outlined in F must take one language; all other students must take two languages.

1. **LATIN**—Robertson & Carruthers' *Latin Lessons for Beginners*, Lessons I.-XLV., inclusive.

2. **GREEK**—White's *First Greek Book*, Lessons I.-XXX., inclusive.

3. **FRENCH**—Either Fraser & Squair's *New High School French Grammar*, Lessons I.-XXXIII., inclusive; or Siepmann's *Primary French Course*, Part I.: (a) Lessons 1 to 14, i.e., pages 1 to 57, inclusive; (b) exercises on lessons 1 to 14, i.e., pages 123 to 153, inclusive.

It is recommended that Fraser & Squair's *New High School Grammar* be followed in High Schools in which the teacher is not a finished French scholar, but that Siepmann's *Primary French Course* be adopted in cases where the teacher not only reads the language with ease, but speaks it fluently and with the correct accent.

4. **GERMAN**—Vandersmissen & Fraser's *High School German Grammar* (1912 edition), Lessons I.-XXIII., inclusive.

**E.—Drawing.**

Books V. and VI. of the prescribed series, Third Edition (The Copp, Clark Co., Ltd., Toronto).

**NATURE DRAWING.**

Flowers and plant form. Colour harmonies—primaries, secondaries, tertiaries. Conventionalizing nature forms. The design motive—scheme of colour to be made from every flower and insect drawn.

## ART GEOMETRY.

Subdivision of space (*see* circular on drawing). Placing the mass (*a*) in border—principles: repetition; (*b*) in panel—variety, balance, symmetry. Connecting the mass—lines of growth. Contrasting features—variety.

Applied design: Using colour schemes and motives obtained in previous lessons. For practical application in stencilling; embroidery; applique; china-painting; stained wood; piercing; inlay; metal repoussé.

Object drawing for practice in reproduction (constructive); appreciation of artistic form; appreciation of tone; appreciation of texture; appreciation of colour.

Compose groups and apply to poster-work, advertisements, etc. Apply principles used in designing from plant forms.

## ART APPRECIATION.

Talks on varied subjects: Art in the house; art in the street; art in the workshop and factory; picture study.

Scales and measured drawings to be carried out in conjunction with the manual work.

## BOOKS FOR REFERENCE.

Drawing from Models and Objects—John Carroll (Burns and Oates, London, Eng.).

Practical Geometry for Art Students—John Carroll (Burns and Oates, London, Eng.).

Pattern Drawing and Design—John Carroll (Burns and Oates, London, Eng.).

Lessons on Decorative Design—Jackson (Chapman and Hall, London, Eng.).

Studies in Line and Mass—E. A. Branch (Ralph, Holland & Co., London, Eng.).

NOTE.—In connection with the subject of Drawing, it has been decided that the solid geometry contained in Book VA shall be taught to the boys only, and not in the ordinary classroom, but by the manual training instructors in the manual training workshops. In lieu of this solid geometrical drawing more attention should be paid in the classroom to the development of design, and where instruction is given in Household Economics pattern-drawing should be specially emphasized.

## F.—Science (Optional).

Students may substitute for one foreign language either General Science or Physics and Chemistry.

GENERAL SCIENCE—Caldwell & Elkenberry, Revised Edition. (Any twenty chapters selected at the discretion of the teacher.) Pupils should also supply themselves with the accompanying Laboratory Manual by Caldwell, Elkenberry & Pieper, and should perform the suggested experiments and keep careful notes.

Or

PHYSICS AND CHEMISTRY—Gregory & Simmons, Stages I, II, and III, with the following omissions:—

In Stage I.—Lessons VI., VII., VIII., XXXII., XXXIII., XXXIV., and XXXV.;

In Stage II.—Summary of First Stage, Lessons XII., XIII., and that part of Lesson XIV. treating with *Heat absorbed in the conversion of water into steam*;

In Stage III.—Summary of First and Second Stages, Lessons XVIII., XIX., and XX.

## Advanced Course, Junior Grade.

## A.—English.

1. READING AND ORTHOEPY—Oral reading, with special attention to expression and pronunciation. Prescribed text, as in English Literature.

2. WRITING AND SPELLING—As in Preliminary Course, Junior Grade.

3. ENGLISH LITERATURE—Goldsmith's *The Deserted Village*; Byron's *Childe Harold's Pilgrimage*, Canto IV.; Wordsworth's *Upon Westminster Bridge*, *The Green Linnet*, *To the Cuckoo*, *She was a Phantom of Delight*, *Thought of a Briton on the*

*Subjugation of Switzerland*; Scott's *Rosabelle*, *The Outlaw*, *The Rover*, *Jock of Hazeldean*; Shelley's *Ozymandias of Egypt*, *To a Skylark*; Keats' *On First Looking into Chapman's Homer*, *The Terror of Death*, *Ode to a Nightingale*, *Ode to Autumn*, *The Human Seasons* (Select Poems, ed. Alexander, 1897).

4. COMPOSITION—Sykes' Elementary Composition; Letter-writing; Essays and themes. The examination on this subject, besides testing the pupil's knowledge of the prescribed text, will consist of an essay on one of three specified subjects, two of which will be from the English Literature prescribed for the year. In preparation for the examination, frequent and systematic practice in essay-writing throughout the year will be imperative. The value attached to the examination paper will be apportioned by giving 25 per cent. to the questions on the work of the prescribed text and 75 per cent. to the essay.

#### B.—Mathematics.

1. ALGEBRA—The first twenty-two chapters of Hall & Knight's Elementary Algebra.

Or

Crawford's Algebra—the limits as prescribed for the Preliminary Course, and Chapters VIII., IX., XI. (to the foot of page 141), XIV., and XV.

2. GEOMETRY—Hall & Stevens' School Geometry, Parts I. and II., i.e., pages 1 to 138, inclusive (London Edition).

Or

Parts I. and II., i.e., pages 1 to 142, inclusive, but omitting pages 128 to 134, inclusive, and page 139 (Canadian Edition).

#### C.—Classics.

Students who choose the science options outlined in D must take one language; all other students must take two languages. Students who chose the science option in the first year should continue the language already chosen.

1. LATIN—Robertson & Carruthers' Latin Lessons for Beginners pages 1-324 (omitting the B exercises, both Latin and English, in Lessons XLVI.-LXXX., inclusive, and Reading Lessons IX.-XV., inclusive), together with the Supplementary Reading Lessons, pages 328-334, inclusive, and pages 351-360, inclusive; also the Appendix, pages 362-377, inclusive.

NOTE.—With the view of securing uniformity of pronunciation, it is recommended that the Roman pronunciation be used.

2. GREEK—White's First Greek Book, Lessons I.-LIX., inclusive.

3. FRENCH—Either Fraser & Squair's New High School French Grammar, Lessons I.-LXVI., inclusive, together with Bedollière's *La Mère Michel et son Chat* (Heath & Co.); or Siepmann's Primary French Course, Part I.; (a) Lessons 1 to 30, i.e., pages 1 to 121, inclusive; (b) exercises on lessons 1 to 30, i.e., pages 123 to 195, inclusive; (c) Bedollière's *La Mère Michel et son Chat* (Heath & Co.).

It is recommended that Fraser & Squair's New High School Grammar be followed in High Schools in which the teacher is not a finished French scholar, but that Siepmann's Primary French Course be adopted in cases where the teacher not only reads the language with ease, but speaks it fluently and with the correct accent.

4. GERMAN—Vandersmissen & Fraser's High School German Grammar (1912 edition), Lessons I.-XLVIII., inclusive, together with Andersen's *Bilderbuch ohne Bilder* (Heath & Co.).

NOTE.—Candidates for Third-class Non-professional Certificates who choose Physiology will not be required to take any foreign language.

5. PHYSIOLOGY—Stowell's Essentials of Health (The Education Book Co.).

#### D.—Science.

Students who choose two languages must take Botany and any one of the following science subjects: Agriculture, Chemistry, Physics. Those taking one language must take Botany and any two of the following: Agriculture, Chemistry, Physics.

1. **BOTANY**—Seeds and germination; buds; markings on stems; catkins; leaves—arrangement, accurate description, venation, modifications, relations to root, sunlight, and surroundings; experiments to demonstrate transpiration; test for starch and explain formation; oxygen essential to plant-life; roots absorb water (explain); root forms and growth; rhizomes and tubers; flower types (as illustrated by families mentioned below); carpels and placentation; double flowers; study of two or three weeds; a cone; branching of lilac (or similar form) and conifers; pollination (Groom, Chap. XI.); dispersal of seeds (Groom, Chap. XIII.); plants and habitat (pupils should show some acquaintance with the common flowering plants of their neighbourhood); phenological record; idea of family, genus, and species.

Pupils are expected to recognize such common and well-marked families as Ranunculaceæ, Crucifere, Papilionaceæ, Rosaceæ, Ericaceæ, Compositæ, Liliaceæ, Labiatæ, Scrophulariaceæ, Umbellifere.

Care should be taken not to make this course too formal by too much dependence on the text-book. The ordinary nature-study methods should prevail.

## 2. AGRICULTURE (FIRST YEAR).

*Soil Study*—Origin, formation, and classification; physical analysis; necessity and value of drainage; levels and grades.

*Plant and Seed Studies*—Field and laboratory studies in weeds, grasses, cereals, and forage plants; collecting and mounting of specimens; identification of noxious-weed seeds; protective legislation.

*Vegetable Gardening*—Choice and classification of garden varieties; preparation and management of hot-beds and cold-frames; garden practice.

*Fruit-growing*—Selection of varieties; methods of propagation; pruning.

*Poultry*—Breeds, housing, feeding, and management; incubation and brooding; common pests, diseases, and treatment.

*Insect Study*—Identification and life-history of field, garden, and orchard insects; remedial measures.

*Bee-keeping*—Relationships and life-history of the honey-bee; swarming; winter care; equipment.

Or

2. **AGRICULTURE (SECOND YEAR).** (NOTE.—To be taken only by those students who completed First-year Agriculture in the preliminary year.)

*Soil Study*—Fertility and management; crop rotation; plant-foods in the soil; fertilizers; effects of tillage and humus; conservation of moisture; dry-farming; irrigation.

*Plant and Seed Studies*—Field and laboratory studies in weeds, grasses, cereals, forage and root crops continued; cultural methods and crop improvement; selection of field and garden seeds; seed germination and vitality tests; types and varieties.

*Vegetable Gardening and Floriculture*—Garden plans; cultural methods for important garden crops; selection and growing of flowering bulbs, annuals, and perennials; beautifying of home grounds.

*Fruit-growing*—Orchard practice—site, planting, cultivation, fertilizing, and inter-cropping.

*Live Stock and Dairying*—Relationship of live stock to good farming; history, study of types, and management of horses, cattle, sheep, and swine; determination of chief constituents of milk; use of lactometer and Babcock test; records and herd improvement.

*Insect Study*—Work of first year continued; making and application of common insecticides.

*Plant-diseases*—Fungus and bacterial diseases common to cultivated crops and their control.

3. **CHEMISTRY**—Cornish's Chemistry, Chapters I. to X., inclusive, i.e., pages 1 to 148, inclusive (The Macmillan Co. of Canada, Ltd., Toronto). The exercises in the accompanying Laboratory Manual (Revised Edition) covering the above work should be performed.

4. PHYSICS—Merchant & Chant's High School Physics (The Copp, Clark Co., Ltd., Toronto), Chapters I., X., XI., XII., XVIII., XIX. (but omitting sections 198 and 199), XX. (to end of section 206), XXIV., XXV., XXVI. (omitting section 261), and XXXI. The exercises in the accompanying Laboratory Manual covering the above work should be performed, with the exception of Nos. 6, 36, 37, and 39.

#### Intermediate Grade.

##### A.—English.

1. READING AND ORTHOEPY—As in Advanced Course, Junior Grade.
2. WRITING AND SPELLING—As in Junior Grade.
3. COMPOSITION—Examination on this subject will consist of an essay on one of three specified subjects, two of which will be from the English Literature prescribed for the year. In preparation for the examination, frequent and systematic practice in essay-writing throughout the year will be imperative.

##### 4. ENGLISH LITERATURE—

- (a.) PROSE—Macaulay's *Essay on Milton* (The Riverside Literature Series); Addison's *The Sir Roger de Coverley Papers*, Parts I. and II. (The Riverside Literature Series).
- (b.) POETRY—Milton's *Hymn on the Nativity*, *L'Allegro*, *Il Penseroso*, *Lycidas*; Dryden's *Mac Flecknoe*, *A Song for St. Cecilia's Day*, *Alexander's Feast*; Gray's *Elegy Written in a Country Churchyard*, *The Progress of Poesy*, *The Bard*; Byron's *The Prisoner of Chillon*; Keats' *The Eve of St. Agnes* (Hales' Longer English Poems. Macmillan & Co.).

##### B.—History and Geography.

1. BRITISH HISTORY—Wroong's *The British Nation* (Morang & Co.).
2. GRECIAN HISTORY—Botsford's *Ancient History for Beginners*, pages 1-253 (The Macmillan Co. of Canada).
3. GEOGRAPHY—Tarr's *Physical Geography* (The Macmillan Co. of Canada), chapters bearing on the following topics: The Earth, The Universe, The General Features of the Air, The Sun's Heat, The Temperature of the Earth's Surface, The Winds, Storms, Moisture in the Atmosphere, Light, Electricity, and Magnetism.

##### C.—Mathematics.

1. ALGEBRA—The first thirty-one chapters of Hall & Knight's *Elementary Algebra*.  
Or  
Crawford's *Algebra*—the whole book, with the exception of Chapters XIII., XX., and XXV.
2. GEOMETRY—Hall & Stevens' *School Geometry*, Parts I., II., III., and IV., i.e., pages 1 to 246, inclusive, but omitting pages 202 to 218, inclusive (London edition).  
Or  
Parts I., II., and III., i.e., pages 1 to 202, inclusive, but omitting pages 197 to 202, inclusive (Canadian edition).

##### D.—Science.

CHEMISTRY—Waddell's *School Chemistry* (The Macmillan Co. of Canada).

##### E.—Classics.

1. LATIN—Henderson & Fletcher's *First Latin Book and Reader* (omitting in Part II. the selections from *Nepos* and the exercises based on *Nepos*); also Virgil's *Æneid*, Book I.
2. GREEK—White's *First Greek Book* (Ginn & Co.).  
Or
2. FRENCH—Fraser & Squalr's *New High School French Grammar* (The Copp, Clark Co.), together with Voltaire's *Histoire de Charles XII.*, Book I.

## Or

2. GERMAN—Vandersmissen & Fraser's High School German Grammar, 1912 edition (The Copp, Clark Co.), together with Volkmann's *Kleine Geschichten* (Heath & Co.), and *Stille Wasser*, ed. Bernhardt (Heath & Co.). It is recommended that candidates should read the prescribed texts in the above order, beginning in Volkmann's *Kleine Geschichten* with *Himmelsschlüssel* and *Stiebnmellenstiefel*.

## Senior Grade.

## A.—English.

1. READING AND ORTHOEPY—As in Advanced Course, Junior Grade.
2. WRITING AND SPELLING—As in Junior Grade.
3. COMPOSITION—The writing of an essay on one of three subjects selected by the Examiner, two of which must be from the English Literature prescribed for the year.
4. ENGLISH LITERATURE—
  - (a.) PROSE—George Elliot's *Silas Marner*; Thackeray's *Henry Esmond*; Ruskin's *Sesame and Lilies*.
  - (b.) POETRY—Spenser's *Prothalamion*; Pope's *Rape of the Lock*; Johnson's *The Vanity of Human Wishes*; Burns' *The Cotter's Saturday Night*; Cowper's *Heroism*, *On the Receipt of My Mother's Picture*; Coleridge's *The Ancient Mariner*; Wordsworth's *Intimations of Immortality*; Shelley's *Adonais*. (Hales' Longer English Poems. The Macmillan Co. of Canada).
  - (c.) HISTORY OF ENGLISH LITERATURE—Stopford A. Brooke's English Literature, Chapters IV.-VIII.

## B.—History and Geography.

1. ROMAN HISTORY—Botsford's *Ancient History for Beginners*, pages 254-469 (The Macmillan Co. of Canada).
2. GEOGRAPHY—Tarr's Physical Geography, chapters bearing on the following topics: The General Characteristics of the Ocean, Ocean Waves and Currents, Tides, The Crust of the Earth, Denudation of the Land, River Valleys (including Waterfalls and Lakes), Glaciers, The Coast Line (Sea and Lake Shores), Plateaus and Mountains, Volcanoes, Earthquakes and Geysers.

## C.—Mathematics.

1. ALGEBRA—Hall & Knight's Elementary Algebra.
2. GEOMETRY—Hall & Stevens' School Geometry (London edition), Parts IV., V., and VI.
3. TRIGONOMETRY—The first eighteen chapters of Hall & Knight's Elementary Trigonometry, or Murray's Plane Trigonometry, complete (Longmans, Green & Co.).

## D.—Science.

1. PHYSICAL SCIENCE—Gage's Introduction to Physical Science, omitting chapters on Sound and Light (Ginn & Co.).

## E.—Classics.

1. LATIN—Virgil's *Aeneid*, Book II.; Horace, *Odes*, Book I.; Cicero, *Pro Lege Manilia*; also Fletcher & Henderson's Latin Prose Composition.
2. GREEK—Xenophon's *Anabasis*, Books I. and II.

## Or

2. FRENCH—Fraser & Squirrel's New High School French Grammar (The Copp, Clark Co.), together with Daudet's *Trois Contes Choisis* (Heath & Co.), Alexandre Dumas' *Napoleon* (The Macmillan Co. of Canada), and Edmond About's *Le Roi des Montagnes* (The Macmillan Co. of Canada).

## Or

2. GERMAN—Vandersmissen & Fraser's High School German Grammar, 1912 edition (The Copp, Clark Co.), together with Leander's *Träumereien* (Heath & Co.),

Freytag's *Die Journalisten* (Ginn & Co.), and Moscher's *Willkommen in Deutschland* (Heath & Co.).

### Senior Academic Grade.

To secure a Senior Academic Certificate, students must take B, C, and D of the Senior Grade Course, if they have not already passed the Senior Grade examination. They will also be examined on the following course in English and Classics:—

#### A.—English.

##### ENGLISH LITERATURE—

- (a.) PROSE—Goldsmith's *Vicar of Wakefield*; Carlyle's *Heroes and Hero Worship*; Ruskin's *Crown of Wild Olive*.
- (b.) POETRY—Shakespeare's *Julius Cæsar* and *Macbeth*; Pope's *Essay on Man*; Dryden's *Absalom and Achitophel*.
- (c.) Brooke's English Literature, complete.

#### E.—Classics.

1. LATIN—Horace, *Odes*, Books II. and III.; Tacitus, *Agricola*; Latin Prose Composition.

2. GREEK—Lucian's *Vera Historia* (Jerram, Clarendon Press); Homer, *Iliad*, Book I.; Greek Prose Composition.

Or

2. FRENCH—Voltaire's *Histoire de Charles XII.*, ed. Fasnacht (Macmillan & Co.); Victor Hugo's *Les Misérables* (abridged by Sumichrast, published by Ginn & Co.); Molière's *L'Avare* (The Macmillan Co. of Canada); or Cornelle: *Le Cid* and *Polycucte*, and Emile Souvestre: *Un Philosophe sous les Toits*.

Or

2. GERMAN—Baumbach's *Schwiegersohn* (Heath & Co.); Wachenhusen's *Von Ersten Bis Zum Letzten Schuss* (The Macmillan Co. of Canada); Mosen's *Der Bibliothekar* (Heath & Co.).

### LISTS OF AUTHORIZED TEXT-BOOKS FOR HIGH SCHOOLS.

#### English.

English Composition, Elementary—Sykes (The Copp, Clark Co., Ltd., Toronto).

English Grammar, The British Columbia High School—Lang (The Copp, Clark Co., Ltd., Toronto).

English Literature—Stopford Brooke (The Macmillan Co. of Canada, Toronto).

Fifth Reader—Gage (20th Century edition).

Longer English Poems—Hales (The Macmillan Co. of Canada, Toronto).

Select Poems—Alexander (The Copp, Clark Co., Ltd., Toronto).

System of Shorthand—Isaac Pitman.

*Absalom and Achitophel*—Dryden.

*Crown of Wild Olive*—Ruskin.

*Essay on Man*—Pope.

*Essay on Milton*—Macaulay (The Riverside Literature Series).

*Henry Esmond*—Thackeray.

*Heroes and Hero Worship*—Carlyle.

*Ivanhoe*—Scott.

*Julius Cæsar*—Shakespeare.

*Macbeth*—Shakespeare.

*Sesame and Lilies*—Ruskin.

*Silas Marner*—George Elliot.

*Sir Roger de Coverley Papers*, The, Parts I. and II.—Addison (The Riverside Literature Series).

*Vicar of Wakefield*, The—Goldsmith.

**History and Geography.**

- Ancient History for Beginners—Botsford (The Macmillan Co. of Canada, Toronto).  
 British Nation, The—Wrong (Morang & Co.).  
 Canadian Civics (British Columbia edition)—R. S. Jenkins (The Copp, Clark Co., Ltd., Toronto).  
 Canadian History—W. L. Grant (Renouf Publishing Co., Montreal).  
 Maps of Classical Geography—Dr. Klepert.  
 Physical Geography—Tarr (The Macmillan Co. of Canada).

**Mathematics.**

- Algebra, Elementary—Hall & Knight (The Macmillan Co. of Canada, Toronto).  
 Arithmetic, Book III.—Milne (Morang & Co., Toronto).  
 Arithmetic, Revised—Hamblin Smith (Gage & Co., Toronto).  
 Book-keeping—McLean (The Copp, Clark Co., Toronto).  
 Book-keeping Course, New (Gage & Co., Toronto).  
 Geometry, A School—Hall & Stevens (Macmillan & Co., London, England).  
 Geometry, A School—Hall & Stevens (Canadian edition) (The Macmillan Co. of Canada, Toronto).  
 Geometry, The Ontario High School (The Copp, Clark Co., Toronto).  
 Logarithmic and Trigonometric Tables (Longmans, Green & Co., Toronto).  
 Trigonometry, Elementary—Hall & Knight (The Macmillan Co. of Canada, Toronto).  
 Trigonometry, Plane—Murray (Longmans, Green & Co.).

**Science.**

- Botany—Spotton (Gage & Co., Toronto).  
 Botany, Elementary—Groom & Penhallow (The Copp, Clark Co., Toronto).  
 Chemistry, School—Waddell (The Macmillan Co. of Canada, Toronto).  
 Chemistry—Cornish (The Macmillan Co. of Canada, Ltd., Toronto).  
 Health, Essentials of—Stowell (The Educational Book Co., Toronto).  
 Laboratory Manual—Caldwell, Eikenberry & Pieper (Ginn & Co., Boston).  
 Laboratory, Manual (revised edition)—Cornish (The Macmillan Co. of Canada, Ltd., Toronto).  
 Laboratory Manual—Merchant & Chant (The Copp, Clark Co., Ltd., Toronto).  
 Physics, High School—Merchant & Chant (The Copp Clark Co., Ltd., Toronto).  
 Physics and Chemistry, Elementary—Gregory & Simmons, Stages I., II., and III. (The Macmillan Co. of Canada, Toronto).  
 Science, General—Caldwell & Eikenberry (revised edition) (Ginn & Co., Boston).  
 Science, Physical—Gage (Ginn & Co., Boston).

**Classics.****FRENCH—**

- French Course, Primary, Part I.—Slepmann (Macmillan & Co., London, England).  
 French Grammar, New High School—Fraser & Squir (The Copp, Clark Co., Toronto).  
 Histoire de Charles XII.—Voltaire; ed. Fasnacht (The Macmillan Co. of Canada, Toronto).  
 La Mère Michel et son Chat—La Bédollière (D. C. Heath & Co., New York).  
 Le Cid—Cornellie (D. C. Heath & Co., Boston).  
 Les Misérables—Victor Hugo; ed. Sumichrast (Ginn & Co., Boston).  
 Le Roi des Montagnes—Edmond About (The Macmillan Co. of Canada, Toronto).  
 Napoléon—Alexandre Dumas (The Macmillan Co. of Canada, Toronto).  
 Polyenette—Cornellie (D. C. Heath & Co., Boston).  
 Trois Contes Choisis—Daudet (D. C. Heath & Co., Boston).  
 Un Philosophe sous les Toits—Souvestre (D. C. Heath & Co., Boston).

**GERMAN—**

German Grammar, High School (1912 edition)—Vandersmissen & Fraser (The Copp, Clark Co., Ltd., Toronto).

Bilderbuch ohne Bilder—Andersen (D. C. Heath & Co., Boston).

Die Journalisten—Feytag (Ginn & Co., Boston).

Der Bibliothekar—Mosen (D. C. Heath & Co., Boston).

Kleine Geschichten—Volkman (D. C. Heath & Co., Boston).

Schwiegersohn—Baumbach (D. C. Heath & Co., Boston).

Stille Wasser—ed. Bernhardt (D. C. Heath & Co., Boston).

Trilumerelen—Leander (D. C. Heath & Co., Boston).

Von Ersten Bis Zum Letzten Schuss—Wachenhusen (The Macmillan Co. of Canada, Toronto).

Willkommen in Deutschland—Mosher (D. C. Heath & Co., Boston).

**GREEK—**

First Greek Book—White (Ginn & Co., Boston).

Greek Prose Composition—Fletcher & Nicholson (The Copp, Clark Co., Ltd., Toronto).

Greek Grammar—Goodwin (Ginn & Co., Boston).

**LATIN—**

Latin Lessons for Beginners (The Educational Book Co., Toronto).

Latin Prose Composition—Fletcher & Henderson (The Copp Clark Co., Ltd., Toronto).

Vera Historia—Lucian (Jerram, Clarendon Press).

Classics, Illustrated—Bell.

Classics, Series of Elementary—Macmillan.

**COMMERCIAL COURSE FOR HIGH SCHOOLS.****First-year Course.****1. Reading and Orthoepy.**

Oral reading, with special attention to expression and pronunciation. Prescribed text, Fifth Reader.

**2. Penmanship.**

Principles and practice of muscular movement.

**3. Spelling.**

Words in common use, technical terms of financial, commercial, manufacturing, and transportation business. Smith's Cumulative Speller (Shorthand Edition), first fifty lessons.

**4. English Literature.**

A careful study of the Fifth Reader; Scott's *Ivanhoe*.

**5. Composition.**

Sykes' Elementary Composition; Letter-writing; Essays and themes.

**6. History.**

Grant's Canadian History (Renouf Publishing Co.) and Jenkins' Canadian Civics, B.C. edition (The Copp, Clark Co., Toronto).

**7. Arithmetic.**

Pure and commercial arithmetic, as in Milne's Arithmetic, Book III.

**8. Book-keeping and Business Forms.**

Principles and practice of double entry, notes, drafts, cheques, invoices, bills and accounts, receipts, due bills, credit notes, deposit slips, requisitions, and bank drafts.

**9. Typewriting.**

Principles of touch system; speed, a rate of fifteen words a minute. Smith's Touch System.

**10. Shorthand Theory.**

Pitman's Short Course.

**Second-year Course.****1. Reading and Orthoepey.**

Oral reading, with special attention to expression and pronunciation. Prescribed text, as in English Literature.

**2. Penmanship.**

Principles and practice of muscular movement continued.

**3. Spelling.**

Words in common use, technical terms of financial, commercial, manufacturing, and transportation business. Smith's Cumulative Speller (Shorthand Edition).

**4. English Literature.**

Goldsmith's *The Deserted Village*; Byron's *Childe Harold's Pilgrimage*, Canto IV.; Wordsworth's *Upon Westminster Bridge*, *The Green Linnet*, *To the Cuckoo*, *She was a Phantom of Delight*, *Thought of a Briton on the Subjugation of Switzerland*; Scott's *Rosabelle*, *The Outlaw*, *The Rover*, *Jock of Hazeldean*; Shelley's *Ozymandias of Egypt*, *To a Skylark*; Keats' *On First Looking into Chapman's Homer*, *The Terror of Death*, *Ode to a Nightingale*, *Ode to Autumn*, *The Human Seasons* (Select Poems, ed. Alexander, 1897).

**5. Composition.**

Sykes' Elementary Composition; Letter-writing; special attention to business and social forms and correspondence. Essays and themes. The examination on this subject, besides testing the pupil's knowledge of the prescribed text, will consist of an essay on one of three specified subjects, two of which will be from the English Literature prescribed for the year. In preparation for the examination, frequent and systematic practice in essay-writing throughout the year will be imperative. The value attached to the examination paper will be apportioned by giving 20 per cent. to the questions on the work of the prescribed text, 30 per cent. to letter-writing, and 50 per cent. to the essay.

**6. Arithmetic.**

- (a.) General principles of arithmetic and mensuration, application to common problems of the arts and trades, estimates in carpenter work, lathing, plastering, roofing, fencing, excavating, masonry, paving, painting, papering, carpeting, time sheets, pay sheets, percentage, commission, duties and customs taxes, insurance, interest, bank discount, trade discount, brokerage, exchange, partnership, settlements, partial payments, equation of payments, stocks and investments, debentures and sinking funds, annuities certain, tabular and graphical statistics. Milne's Arithmetic, Book III., and Hamblin Smith's Arithmetic, revised edition, pages 1-204. The Metric System.

- (b.) Rapid calculation.

**7. Book-keeping.**

Keeping of accounts, training in principles and practice of debit and credit, double entry book-keeping, with use of ledger and the preparation of financial statements; therefrom, the journal as a classifier of entries, the introduction of cash book, bill book, invoice book, sales book, bank book, and the use of special columns as devices to secure better classification of records and to secure accuracy and save time and labour, subdivision of the ledger, principles of self-balance, monthly and annual statements, working account, profit and loss, assets and liabilities, special devices in special lines of business, merchandising, wholesale and retail, commission, manufacturing, single ownership, partnership and corporation, auditing.

**8. Laws of Business.**

Law, its divisions, the British North America Act, distribution of legislative powers, contracts, Statute of Limitations, negotiable papers, endorsement and consequent liability, discharge, dishonour, protest, negotiability, assignability, accommodation, chattel mortgages, mortgages, agency, laws relating to partnership and Joint-stock Company organization, guarantee and suretyship, receipts and releases, landlord and tenant, banks and banking.

**9. Typewriting.**

Touch system, use of various typewriters, copy work, plain and tabular, transcription of shorthand notes, speeding, a rate of forty words per minute, manifolding, use of letter press, filing and indexing.

**10. Stenography.**

Principles of Isaac Pitman's phonography, dictation, speed, transcription, writing of legal forms and business correspondence at a rate of one hundred words per minute, and transcription at a rate of fifteen words per minute.

**Third-year Course.****1. Penmanship.**

Continuation of the principles and practice of muscular movement; engrossing.

**2. English Literature.**

(a.) PROSE—Macaulay's *Essay on Milton* (The Riverside Literature Series); Addison's *The Sir Roger de Coverley Papers*, Parts I. and II. (The Riverside Literature Series).

(b.) POETRY—Milton's *Hymn on the Nativity*, *L'Allegro*, *Il Penseroso*, *Lycidas*; Dryden's *Mac Flecknoe*, *A Song for St. Cecilia's Day*, *Alexander's Feast*; Gray's *Elegy Written in a Country Churchyard*, *The Progress of Poetry*, *The Bard*; Byron's *The Prisoner of Chillon*; Keats' *The Eve of St. Agnes* (Hales' Longer English Poems. Macmillan & Co.).

Or

(a.) (b.) Literature as prescribed for Junior Matriculation Examination by the University of British Columbia.

**3. Arithmetic.**

(a.) General review of commercial arithmetic; annuities, debentures, equation of accounts; logarithms; interest tables; mensuration.

(b.) Rapid calculation.

**4. Business Correspondence.**

Parts of a business letter; margins and spaces in typewriting; punctuation; various types of a business letter; circular letters; form letters and follow-up systems; manifolding and filing systems; telegrams, cablegrams. Text-book: "Business Letter Writing" (Warner).

**5. Accountancy.**

- (a.) **THEORY**—Classification of accounts; reserve and reserve funds; realization and liquidation accounts; suspense accounts; goodwill and depreciation; apportionments in partnership and executors' accounts; bonds, debenture and sinking funds accounts; cost accounts and division of costs between manufacturing, trading, and executive accounts; departmental and branch trading.
- (b.) **PRACTICE**—Joint-stock accounts; various systems of cost accounts in manufacturing; contracting, milling, shipping and transportation, publishing; use of columnar cash-books and synoptic journals adaptable to various systems of accounts; self-balancing ledgers, and branch department accounting; loose-leaf, bill and charge, and duplication voucher; filing systems. Text-books: "Expert Book-keeping" (Fleming); "Ontario High School Book-keeping" (Ward).

**6. Laws of Business.**

Course of second year reviewed and extended to include laws of real property; laws of personal property; the Conditional Sales Act; laws of interest and Money Lenders Act; landlord and tenant; Land Titles Act and Torren's system of registration; Mechanics' and Wage Earners' Lien Act; suits, attachments, and garnishments; wills, descent of property, laws of inheritance; Probate and Surrogate Court; the clearing-house system. Text-book: "Digest of Commercial Law" (Anger).

**7. Statute Law.**

Bills of Exchange Act; Dominion and British Columbia Companies Acts.

**8. Elementary Economics and Civics.**

Laws of supply and demand; growth of trade; production; land and natural forces; capital and labour; co-operation and business organization; distribution; money and mechanism of exchange; climate and topography and their influence on life; social conditions; manufacturing facilities; transportation facilities; financial conditions; various commercial products, natural and manufactured, of each country; markets and trade routes of the world; the Government, national, provincial, municipal; the franchise; the party system; the judicial system; parliamentary procedure.

**9. Typewriting.**

Speed practice up to sixty words a minute; legal documents; financial statements.

**10. Shorthand.**

Speed practice up to one hundred and thirty words a minute; legal and mercantile terms; evidence-taking and newspaper reporting.

**Books prescribed for the Commercial Course in High Schools.**

Arithmetic, New Method (Commercial Text Book Co., Toronto).  
 Book-keeping, Single and Double Entry (Commercial Text Book Co., Toronto).  
 Dictation Course in Business Literature—Ralquer (H. M. Rowe Co., Baltimore).  
 Shorthand, Century Edition—Isaac Pitman.

**Books prescribed for the Use of Commercial Teachers in High Schools.**

Business English—Hotchkiss & Drew (American Book Co., New York).  
 Effective Business Letters—Edward Hall Gardner (Ronald Press Co., New York).  
 Touch Typewriting, A New Practical Course in—G. M. James, B.A., LL.B. (Ontario Publishing Co., Belleville, Ont.).

**Books recommended for Teachers.**

Accountants, Manual for—Eddis.  
 Accountants, Joint Stock Co.—Hoskins.

Accounting, Municipal—MacPherson.  
 Accounting and Auditing, Corporation—Keister.  
 Accounting in Theory and Practice—Lisle.  
 Arithmetic, High School (The Macmillan Co. of Canada, Toronto).  
 Auditors, Duties of—MacPherson.  
 Auditing—Dicksee.  
 Book-keeping—Dicksee.  
 Book-keeping, High School—McLean (The Copp, Clark Co., Ltd., Toronto).  
 Money and the Mechanism of Exchange—Jevons.  
 Negotiable Instruments—Johnson.  
 Shareholders' and Directors' Manual—Warde.  
 Statutes of British Columbia.  
 Statutes of Canada.

#### Books recommended for Use of Pupils.

Accountant, Canadian—Johnson.  
 Arithmetic, Book III.—Milne (Morang & Co., Toronto).  
 Arithmetic—Hamblin Smith (W. J. Gage & Co., Toronto).  
 Book-keeping, Expert—Fleming.  
 Book-keeping, Ontario High School—Ward.  
 Book-keeping, Joint Stock Co.—Johnson.  
 Business Letter Writing—Warner.  
 Mercantile Law, Digest of Canadian—Anger.  
 Shorthand (1907)—Pitman.  
 Speller, Cumulative—Smith.  
 Spelling, Practical (Practical Text Book Co.).  
 Touch Typewriting, A Practical Course in—Charles E. Smith.  
 Typewriting (Practical Text Book Co.).

#### Drawing.

Drawing Series, Canadian (third edition), Books V. and VI.—Blair (The Copp, Clark Co., Toronto).

The following books will be found useful for reference:—

Decorative Design, Lessons on—Jackson (Chapman & Hall, London, England).  
 Drawing from Models and Objects—John Carroll (Burns & Oates, London, England).  
 Pattern Drawing and Design—John Carroll (Burns & Oates, London, England).  
 Practical Geometry for Art Students—John Carroll (Burns & Oates, London, England).  
 Studies in Line and Mass—E. A. Branch (Ralph, Holland & Co., London, England).

#### COURSES OF STUDY AND REGULATIONS FOR MANUAL TRAINING SCHOOLS.

1. Where Manual Training Schools are established, attendance is compulsory and must be continuous throughout the school-year, with one-half day's attendance per week for each child. The hours of instruction shall be as defined in Article 1 of the Rules and Regulations for the Government of Public Schools. Boys from distant schools in attendance at the morning session may be dismissed at 11.45 a.m.

2. Manual Training Instructors shall be subject to the same general regulations as Public School Teachers.

3. The Principal of the Public School at which a Manual Training Centre is situated shall have supervision over the general discipline of all classes in attendance at that centre.

4. Instruction shall be given to Intermediate and Senior Grade pupils only.
5. Attendance registers, visitors' book, and stock book must be kept and be open for inspection at all times.
6. A three-years' course of woodwork shall be taken in the Public Schools (compulsory), and in the High Schools a two-years' advanced course in wood or other material (not compulsory).
7. Where the pupil enters the High School before completing the Public School Course, he must, if required by the teacher, complete that course before commencing the High School Course.
8. In all school districts where there is more than one Manual Training Teacher employed, one of these shall be in charge.
9. Each teacher shall design and submit for the approval of the Department of Education a course of models based on the group scheme given below. The models should be arranged to suit the locality—urban or rural—as well as the equipment at the disposal of the boys.
10. An exhibit showing the finished course with working drawings should be on view at each centre, together with the following:—
  - (a.) A liberal number of alternative problems.
  - (b.) Projects showing stages of construction.
  - (c.) Teaching apparatus.
  - (d.) Illustrations of wood shrinkage, seasoning, etc.
  - (e.) Diagrams for teaching purposes, etc.

#### Public School Manual Training Syllabus.

##### 1. Drawing.

Plans and elevations; section-drawings; scale drawings; isometric drawing; copying of drawings; producing complete working drawings from dimensioned sketches; making drawings from models.

Measuring blank drawings when the scale is given.

Ruled and freehand sketching.

Supplying additional views.

Lettering. Graded thus: (1) Lower-case letters in scrip, slanting; (2) capitals, slanting; (3) vertical lettering.

Lessons in design, proceeding in easy stages, as applied to the outline and the construction of models.

The designing of complete models should rarely be attempted before the end of the Fourth Group.

##### 2. Woodwork.

(1.) The exercises or tool operations in each group shall be covered by the models in that group and all the tools indicated shall be used.

(2.) The operations should be carefully graded and the progression should be very easy, especially in Groups 1, 2, and 3.

(3.) In designing the models, provision should be made for ample repetition, the aim being to repeat each new exercise in the two following models at least.

(4.) Easy progressive steps must also be observed in the Drawing lessons, and the models should be designed with that aim also in view.

(5.) The first group may be preceded by a simple preliminary course, such as strip-work, where in the opinion of the teacher such is necessary.

(6.) During the course, lessons should be given on grinding and sharpening chisels, plane irons, and saws.

#### GROUP SCHEME OF WORK.

##### Group 1, Models 1 to 6.

Rule: Measuring.

Knife: Marking out, chamfering.

Try-square: Squaring and testing.

Saws: Hand-saws for cutting out stock; tenon for fine sawing (squaring).

Plane (jack): Medium planing, surface 2 to  $\frac{3}{4}$  inches; narrow planing, surface  $\frac{3}{4}$  inch down; shooting ends.

Gauge (marking): Marking width and thickness.

Chisel: Vertical chiselling; horizontal chiselling.

File: Filing curved outline (end).

Brad-awl: Boring holes.

Brace and bits: Boring holes; bits not to include those mentioned in Group 3.

Glass-paper.

Nails: Nailing and setting (simple).

#### Group 2, Models 7 to 12. (Simple tool operation.)

Knife: Long cut, cross cut, concave and convex cut.

Saws: Bow-saws (curves).

Plane (jack): Broad planing 2 to 4 inches; planing cylinder.

Smoothing-plane.

Chisel: Cross paring (notching).

Gouge (inside): Scribing (vertical).

File: With grain, shaped outline, profile.

Spoke-shave: Profile.

Glue: Gluing, not necessarily a joint.

Joints: Half-lap; open housing.

#### Group 3, Models 13 to 18.

Planes: Wider planing, 4 inches and upwards; end planing; oblique planing; chamfering.

Gouge (outside): Horizontal (open ends).

Spoke-shave: Modelling.

Brace and bits: Countersink; expansive; Forstner.

Knife: Modelling.

Screws: Fixing with screws.

Other operations: Trenching.

#### Group 4, Models 19 to 25.

Gauge (mortise): In joint.

Gouge: Modelling (scooping).

Other operations: Glued and rubbed joint; mortise and tenon joint; stopped housing joint.

#### Group 5, Models 26 to 30.

Gauge (cutting): Easy dovetailing; mitreing; rabbeting; keying; more advanced mortise and tenon construction; more advanced dovetailing; more advanced exercises already mentioned.

### 3. Theory.

Lessons of general information on materials used with the object of encouraging observation.

Recognition of common trees by their leaves, flowers, and fruits.

Recognition of common woods by their markings, weight, smell, etc.

Growth of trees.

Seasoning and marketing of timber.

Products of trees; enemies of trees.

Material used in the construction of tools.

**4. Practice.**

(1.) Boys should provide themselves with aprons or overalls and should be encouraged in good habits of workmanship.

(2.) The working drawings should be kept by each pupil in a folder until the three-years' course is completed.

(3.) Mistake sheets should be carefully filled in and kept until entering High School. Due regard should be paid to penmanship and spelling.

(4.) Models and drawings should have a maximum of 10 marks each.

(5.) Tests in Theoretical work should also be given and marks awarded.

(6.) Both the English and the Metric system of measuring are to be used.

(7.) The boy may be allowed to submit an alternative model, provided it embodies the required exercises.

**High School Manual Training Syllabus.**

**First and Second Years' Woodwork** (where there is not provision for Metalwork), or a combined course of wood and other material.

A scheme of work to be submitted approaching the technical side of the subject based on the exercises taken in the Public School Course, but including larger and more complicated models, some of which might be class-work.

Wood-turning to be introduced. Grinding and sharpening of bench and lathe tools.

**Metalwork.**

A scheme of work to be submitted, based on the following:—

Models to be made, embracing—

(a.) Soldering.

(b.) Brazing.

(c.) Etching in copper, copper modelling, or kindred artistic treatment of metals.

(d.) Forge-work.

(e.) Bent-Iron work.

(f.) Chipping and filing.

(g.) Turning.

**Diplomas for Manual Training.**

1. Diplomas will be awarded by the Department of Education to pupils who obtain 66⅔ per cent. of the 600 marks possible in the woodwork and drawing of the Public School Course and have completed the first four groups of same. The percentage of marks gained in Woodwork, Drawing, and Theory will be entered on the diploma.

2. Male candidates for the High School Entrance Examinations from schools in which instruction has been given in Manual Training must hold Manual Training Diplomas or fulfil departmental requirements as to attendance and work.

**DOMESTIC SCIENCE.****Rules relating to Domestic Science Centres.**

1. Where Domestic Science Centres are established, attendance is compulsory and must be continuous throughout the school-year. The hours of instruction in Domestic Science shall be as defined in Article 1 of the Rules and Regulations for the Government of Public Schools. Girls from distant schools in attendance at the morning session may be dismissed at 11.45 a.m.

2. A three-years' course of Domestic Science should be taken in the Public Schools.

3. All pupils in the Entrance class and in the two classes below the Entrance class shall take Domestic Science. Classes doing parallel work in other subjects shall do parallel work in Domestic Science.

4. When the forenoon and afternoon periods vary in length, the senior classes *must* take the longer period.

5. Attendance registers, records of lessons, an inventory of equipment, and a visitors' book must be kept and be open for inspection at all times.

6. Expense sheets for food and other materials, exclusive of heating, lighting, and permanent equipment, should be sent to the Secretary of the Board at the end of each month, also an attendance sheet.

7. Only one course of work will be recognized for all the schools in any one city.

8. Domestic Science Instructors shall be subject to the same general regulations as Public School Teachers.

9. The Principal of the Public School at which a Domestic Science Centre is situated shall have supervision over the general discipline of all classes in attendance at that centre.

10. Plans for Domestic Science buildings must be submitted to the Department of Education for approval.

11. All courses of work in Domestic Science must be submitted to the Education Department for approval. Needlework to Intermediate Grade and Senior Grade pupils must be included in the course.

The following is a suggested outline of work:—

#### **First-year Course for Public Schools.**

##### **Needlework.**

If previous sewing lessons have not been taken, *see* Needlework Course.

If the pupils have been taking needlework in the previous grades as suggested in the Needlework Course, *see* that the cap, apron, sleeves, towel, and pot-holder are completed, then follow on with:—

HOUSEHOLD SEWING—Pillow-slips, towels, etc. Making and repairing kitchen linen. Hemstitching, button-holes, patching, darning, knitting. Free cutting continued from previous grades.

##### **Preparatory Lessons in Home Management and Personal Hygiene.**

Washing dishes and saucepans. Care of white wood. Care and cleaning of metals in daily use. Care, cleaning, and disinfecting of sink. Waste and its removal. Construction, management, and cleaning of kitchen range, with simple study of combustion and use of wood and coal respectively. Sweeping and cleaning. Laying the table. Personal cleanliness, care of teeth, nails, hair.

##### **Practical Cookery.**

Definitions, tables, and rules of cookery to be taught by simple lessons selected from the following methods: Boiling, steaming, baking, roasting, shallow frying, sautéing, stewing, etc.

##### **Theoretical Cookery.**

As "practical application is the only mordant which will set things in the memory," principles should be taught in conjunction with the practice of cookery. Reasons for cooking food; effect of applying heat to food. Food principles; use of food to the body. Fuel foods and tissue-building foods. Carbohydrates, proteids, fats, mineral matter.

Reviews to take the form of simple meals; for example, breakfasts or a tray. Develop quick, free, independent action in all lessons. Cooking must be active work, giving the child an ability to do. Explanations should articulate the lessons as closely as possible to those done in other departments of the school. All written lessons should be short, carefully executed, and mistakes corrected by the teacher.

#### **Second-year Course for Public Schools.**

##### **Needlework.**

Draughting; i.e., free cutting and making undergarments. Repairing, patching, darning flannels, prints, and coloured goods, knitting.

**House Management.**

Household brooms and brushes—choice, cost, and care. Cleaning painted, varnished, and polished wood. Various cleansing agents—use, economy, cost. Ventilation—value of fresh air, chimneys, doors, windows. Choice, cost, and care of linoleum and oilcloth. Water—source of supply, pipes, cisterns, storage, etc. Drainage—where pipes go, simple tests for faulty drains. Table setting and service.

**Practical Cookery.**

Recapitulation of the methods taught during the first year, with additions. Boiling, steaming, simmering, roasting, baking, broiling, stewing, sautéing, deep and shallow frying, braising, pot-roasting. Reviews to take the form of simple meals.

**Theoretical Cookery.**

More theory than in first year. Foods and their use to the body. The perfect food. Proteids, carbohydrates, fats, mineral matter. Importance of mixed diets, well balanced and varied. Need for forethought in planning meals. Planning, purchasing, cooking, and serving a luncheon for a family of four. Economy of the larder. Care of the meat—safe, cost, fixture, inexpensive substitutes.

**Laundry-work.**

Arrangement of household washing—washing, boiling, and plain ironing of household linens and underwear. Removal of stains and bleaching. Consideration of water, soap, soap powders, soda, borax, and laundry blue.

**Third-year Course for Public Schools.****Needlework.**

Draughting; i.e., free cutting and making undergarments, or preparing High School outfit. Repairing table linen, mending and darning of outer garments, gloves, etc.

**House Management.**

Practical revision of two former years.

**Practical Cookery.**

Recapitulation of methods taught in the second year, with the addition of the following: Preservation of food. Reasons. Different Methods. Dried foods and their value. Pickling, canning, preserving. Salads with simple dressing. Fruit salads. Marmalade. Poultry—choice, trussing, cooking. Beef cuts. Bread-making. Table service and table setting. Reviews to take the form of meals; for example, dinners.

**Theoretical Cookery.**

Emphasis to be placed on food values and the necessity for a well-balanced and varied diet. Digestion—its meaning, foods easy and difficult to digest. Digestion in the mouth, hard and soft foods, condition of teeth. Digestion from the alimentary canal to intestines. Suitable food for child from birth to dentition. Good and bad types of feeding-bottles. Cleansing of bottle. Sterilizing and pasteurizing milk, whey. The child under two years. Vegetarian diet, advantages and disadvantages.

**Laundry-work.**

Washing and finishing flannels, coloured garments, wool, cotton, linen, muslin, silk, and lace. The management of a small family wash. Soap-making from kitchen grease, soaps, acids, alkalies. Simple methods of softening water. Making and use of starch.

**Diplomas for Domestic Science.**

1. Diplomas will be awarded by the Department of Education to pupils who complete the Course prescribed for Domestic Science.

2. Female candidates for High School Entrance Examinations from schools in which instruction has been given in Domestic Science must hold Domestic Science Diplomas or fulfil departmental requirements as to attendance and work.

**Text-books and Books of Reference for Teachers.**

Elements of Cookery—Williams and Fisher (The Macmillan Co., New York).

Dietetics—Alex. Bryce, M.D. (T. C. & T. E. Jack, London).

The Chemistry of Cookery—W. Mathien Williams (Chatto & Windus, London).

Food and Dietetics—Hutchison (Wm. Wood & Co., London) ✓

Ontario Sewing Manual—Department of Education, Toronto.

Bulletin No. 23, Clothing for the Family—Federal Board for Vocational Education, Washington, D.C.

Hints and Helps on Home Nursing—Cosgrave.

**First-year Course for High Schools.****Dietetics, Cookery, and Table Service (Practical and Theoretical).**

The science of nutrition, physical and chemical changes in matter. Chemical formulæ and equations. Air and combustion. Heat and cooking. Discussion of gas, coal, electricity. Paper-bag and fireless cookery. Classification of foods—carbohydrates, fats, protein. Inorganic food—water, mineral matter. Food preservation. Bread-baking. Invalid cookery. Home nursing and hygiene. Table service.

Work to be correlated to general science. Air and ventilation. Barometer, thermometer, graphic readings, expansion of gases, etc.

**Physiology.**

The systems of the body and their functions. First aid to the injured.

**Needlework.**

Draughting and making underclothing. Estimating costs. Textiles relating to underclothing. History of their manufacture and development. ✓

**Second-year Course for High Schools.****Dietetics and Cookery (Practical and Theoretical).**

Heat measurements. Heat and work. The calorimeter. Daily requirements as regards muscle-building. Energy-furnishing and body-regulator materials.

Balancing, occupation, climate, sex, age, etc., considered. Children's diets and special normal diets considered. Meals planned and worked out to meet requirements in food values, at varying costs.

Serving meals as worked out in dietary study. Work to be correlated to High School General Science (Chemistry and Physics).

**Physiology.**

Home nursing and home hygiene. Recapitulation of first aid to the injured.

**Needlework.**

Cotton skirts. Middles. Smocks and outer garments. Household linen and furnishing. Estimated costs. Textiles relating thereto.

**Third-year Course for High Schools.****Dietetics and Cookery (Practical and Theoretical).**

Revise work of the second year.

Food and its functions. Digestion of foods, foods of vegetable origin and animal origin. Meals planned and worked out to meet requirements in food values at varying costs.

All work to be correlated to High School General Science (Chemistry and Physics).

**Household Chemistry.**

Organic radicles, hydrocarbons, and alcohol; esters and fats, hydrolysis of esters; saponification; soaps—commercial soaps, foreign ingredients in commercial soaps, special soaps, and scouring powders. Solution and emulsification of fats. The cleaning of fabrics, chemistry of textiles, bleaching, bluing, and dyeing.

**Household Physics.**

Heat capacity, specific heat, latent heat; application of latent heat; refrigeration; freezing mixtures; artificial-ice machine; steam heating; steam cookers; distillation; evaporation; dew-point; boiling-point; why clothes dry; causes of cloud, rain, snow, and dew; changes in boiling-point.

Electricity in the home; household electrical appliances; electric bulbs; magnetism and electromagnet; the electric motor in the home; electric heating; cooking and lighting appliances; electric iron, coffee percolator, oven, etc.; the incandescent lamp. Electrical terms and measures; the ampere, ohm, volt, watt.

Light in the home; arrangement of lighting fixtures in the home; intensity of illumination; nature of light.

Reflection and refraction of light; laws of reflection; laws of refraction; lenses and optical instruments.

Colour: Composite nature of white light; the rainbow; theory of colour vision; pigments.

Sound: How sound is produced; nature of sound-waves; noises and musical sounds; pitch, music, and musical instruments.

**Physiology.**

Recapitulation of previous year's work in home nursing, home hygiene, and first aid to the injured.

**Needlework.**

Draughting, cutting, and making up dresses, etc. Millinery. Estimating costs. Textiles relating to personal wear. The personal budget. History of costume.

**Text-books and Books of Reference.**

A Text-book of Domestic Science for High Schools—Matilda G. Campbell (The Macmillan Co.).

The Boston Cooking School Cook Book—F. M. Farmer (Little, Brown & Co., Boston).

The Chemistry of Cookery—W. Mattieu Williams (Chatto & Windus).

Food and Dietetics—Hutchison (Wm. Wood & Co.).

Food and Feeding—Sir Henry Thompson (F. Warne & Co.).

The Laws of Life and Health—Alex. Bryce, M.D. (Melrose, London).

Food and its Functions—Knight (Blackie & Sons, London).

Diet in Relation to Age and Activity—Sir Henry Thompson (F. Warne & Co.).

Common Sense Cookery—Col. Kenny-Herbert (Arnold).

Fifty Breakfasts, Fifty Luncheons, Fifty Dinners—Col. Kenny-Herbert (Arnold).

Essentials of Health—Stowell.

Hints and Helps on Home Nursing—Cosgrave.

First Aid to the Injured.

Practical Domestic Hygiene—J. Lane Notter, M.A., M.D.

Physics of the Household—Lynde (The Macmillan Co.).

A Laboratory Course in Physics of the Household—Lynde (The Macmillan Co.).

## HIGH SCHOOL TECHNICAL COURSE.

### First Year.

#### English.

READING AND ORTHOGRAPHY—As prescribed for Preliminary Course, Junior Grade.

WRITING AND SPELLING—As prescribed for Preliminary Course, Junior Grade.

LITERATURE—As prescribed for Preliminary Course, Junior Grade.

COMPOSITION—As prescribed for Preliminary Course, Junior Grade.

#### Mathematics.

ARITHMETIC AND MENSURATION—Pure and commercial arithmetic, graphical statistics; mensuration of triangle, circle, regular polygons, prisms, pyramid, cylinder, cone, sphere. The solution of the right-angled triangles 45, 45, 90, and 30, 60, 90.

ALGEBRA—As in Hall & Knight's Elementary Algebra, Chapters I.-XVII. Rectangular co-ordinates, the graphical representation of straight lines.

PRACTICAL PLANE GEOMETRY—NOTE.—The object of the first year in this course should be to give the student a thorough working knowledge of elementary practical constructive Geometry as a foundation for the drafting and for the advanced deductive Geometry of the following years of his course. The teacher should, therefore, from the beginning insist on accurately drawn diagrams and should give numerous examples involving graphical and numerical work, and, while insisting upon a somewhat logical and rigid proof of proposition and deduction, should give prominence to constructive Geometry.

CONSTRUCTIONS—The use of the rule (British and Metric), compasses, protractor, and scale rule.

To construct a triangle with sides of given length.

To construct an angle equal to a given rectilineal angle.

To bisect a given angle.

To bisect a given finite straight line.

To draw a perpendicular to a given line from a given point in the line; not in the line.

To construct a square on a given straight line.

To draw a line parallel to a given line, through a given point.

To construct a parallelogram (rectangle) equal in area to a given triangle.

To construct a triangle equal in area to given polygon.

To construct triangles when any necessary parts are given.

To find a mean proportional between two given lines.

To divide a given line similarly to another given divided line.

To find the centre of a circle.

To draw a tangent to a given circle.

Problems on triangles, squares, and circles, inscribed and circumscribed.

Problems on loci.

Practical problems based on these constructions.

Accurate constructions to scale, on drawing paper, drawn lightly in pencil, inked in, and lettered.

THEOREMS—The theorems on the equality of two triangles.

The angles at the base of an isosceles triangle are equal. The converse.

Any two sides of a triangle are together greater than the third side.

The greater side of any triangle has the greater angle opposite to it. The converse.

The sum of the three angles of any triangle is equal to two right angles.

The angle in a semi-circle is a right angle.

If a line fall across two parallel lines, relation between angles is formed. The converse.

Similar triangles, sides proportional.

A study of the parallelogram (rhombus, rectangle, and square) and its diagonals. Parallelograms and triangles on equal bases and between the same parallels.

The square described on the hypotenuse of a right-angled triangle is equal to the sum of the squares described on the other two sides.

If a straight line drawn through the centre of a circle bisects a chord which does not pass through the centre, it shall cut the chord at right angles. The converse.

#### TEXT-BOOKS AND BOOKS OF REFERENCE.

An Introduction to Practical Mathematics, Book I.—Saxelby (Longmans & Co.).

Vocational Mathematics—Dooley (D. C. Heath & Co.). Price \$1.

Elementary Treatise on Graphs—Gibson (Macmillan & Co., London).

Geometry—Hall & Stevens (Macmillan & Co., Toronto).

Algebra—Hall & Knight.

Examples in Practical Mathematics—Collshaw (Longmans & Co., London).

Practical Mathematics—Castle (Macmillan & Co., London).

#### Drawing and Design.

**WORKSHOP SKETCHING**—While the working drawings for wood and metal construction are prepared in their various workshops and are for the most part mechanical, the type of work to be carried out in the Drawing and Design room should be such as will develop power to make rapid freehand sketches.

It is only by his pencil that the craftsman describes operations, and it is on his sketch that he places the measurements for his working drawing.

#### FREEHAND PERSPECTIVE DRAWING.

**DESIGN**—Should form an important part of his work. The craftsman must be trained to see beauty in line, form, and colour.

**ART GEOMETRY**—Pattern-drawing and such geometry as forms the basis for laying out designs, architectural construction. Plans, elevations, sections, oblique and isometric projections. Orthographic projection with sections.

**LETTERING**—The cultivation of a clear, well-formed, rapid style.

#### TEXT-BOOKS AND BOOKS OF REFERENCE.

Studies in Line and Mass—E. A. Branch (Ralph, Holland & Co., London).

Lessons on Decorative Design—Jackson (Chapman & Hall).

Art Education for High Schools—Prang.

Practical Geometry for Art Students—Carroll (Burns & Oates, London).

#### Shop-work.

**WOODWORK**—Students will be expected to have completed the Public School Manual Training Course and have obtained a diploma in woodwork. They should then proceed with problems calling for exact draughtsmanship and the translation of the drawing into material of wood or metal.

Those students who have not had previous training in woodwork should follow an equivalent course which will permit them to proceed as rapidly and thoroughly as possible.

**BENCH-WORK**—The course should consist of such problems as will call for that fundamental knowledge which is expected in industrial life; draughtsmanship, craftsmanship, and taste.

Problems may consist of articles of furniture made by individual students or may be community problems carried out by groups of pupils. Such experimental apparatus as may be useful in emphasizing scientific principles may be made in this lesson period, provided the work does not conflict with the objects of the course.

**MAKING WORKING DRAWINGS**—It is desirable that all drawings should be made in accordance with good drawing-office practice, that parts should be lettered or numbered, and that schedules showing the name symbol, materials, and other particulars as necessary should be made on the drawings. The systems in vogue should be discussed by the teacher and the importance of symbols and scheduling in connection with costing and workshop procedure should be pointed out.

**LATHE-WORK**—Wood-turning: The fundamental exercises should first be taught in order that manipulative skill in correct handling of tools may be acquired. Skill in hand and eye are demanded from the wood-turner, and the student should aim at dexterous handling of the tools and at an appreciation of subtle form. The practice models can usually be put to valuable use in the work on mechanics. For instance, cylinders may be cut obliquely for examples in stability; long- and short-cut exercises when completed may be made very useful as examples in cone sections; parting-tool exercises may readily furnish many pieces which can afterwards be used as reels for resistance coils, etc.

**METALWORK**—Forging: Simple exercises in cutting off, bending, ring bending, drawing out, upsetting, punching, and moulding on the anvil is all that should be attempted in the first year's work. But these exercises will furnish ample scope for a variety of examples of manipulation skill in ironwork. Stress should be laid on the correct calculations for stock, as it is here that practical mathematics may be best taught. Examples to illustrate the method and design in drawing up such a course:—

Pointed articles: Cone from cylinder; ratio of volume of cone to cylinder on same base and of same height; square point; pyramid from cylinder, from prism.

Circular articles: Ratio of circumference to diameter and allowance for bending; training of the eye to recognize circular or true results in work.

Drawing out: Much good may be done in work on these articles in teaching reduction of square sectional areas to round, elongation, and the amount of same as illustrating change of dimensions whilst preserving constant volume.

Fires: In teaching the manipulation of fires and of the iron whilst undergoing heating process, the relations between combustibles and air can readily be made clear and the penalty for abuses can be impressed in the most vital way.

**SHEET-METAL WORK**—While woodwork drawing deals principally with plans, elevations, and sections, the sheet-metal work calls for an exact knowledge of the developments or lay-outs or stretch-outs. This knowledge is of incalculable benefit in industrial life and nothing should be allowed to detract from its importance. It is the first reason for sheet-metal work being in the course. The second reason is the workmanship and skill demanded in order to complete the problem by soldering, brazing, or riveting. The draughting problems should be arranged in carefully graded steps, so that the mind of the student may gradually master the intricacies of laying out construction-work.

Sheet-metal work should also be made to serve as a vehicle for the teaching of many of the more difficult points in physics and chemistry; for example, specific heat; oxidation, solution, alloying, etc.

**MACHINE-WORK**—Drilling; countersinking; grinding; simple turning; limit measuring,  $\frac{1}{16}$ " + - - steel rule.

#### TEXT-BOOKS AND BOOKS OF REFERENCE.

Machine Sketching and Drawing for Night School Students (Copp, Clark Co.).  
Price 37 cents.

- A Manual of Machine Drawing and Design**—Low & Bevis (Longmans, Green).  
Price \$3.
- Exercises for Forge Shop Practice**—Buffalo Forge Co. (Buffalo, N.Y.). Price 50 cents.
- Practical Sheet and Plate Metal Work**—E. A. Atkins (Whitaker & Co.).
- Handcraft in Wood and Metal**—Hooper & Shirley (Batsford). Price \$2.50.
- Carpentry and Joinery**—Wilson (John Heywood, Manchester).
- Text-book of the Principles of Machine Work**—Smith.
- Text-book of Advanced Machine Work**—Smith (Industrial Education Book Co., Boston).

### Mechanics.

As far as possible the principles of mechanics should be obtained by the students themselves in a series of well-graduated exercises, and no attempts should be made to introduce formulæ in the first year except such as are discovered by carefully trained students. Every note-book should show under the headings "Experiments" and "Observations" that a student knows what he is doing and what he sees, but the inferences to be drawn from such experiments may well be given as the result of careful summarization of the individual work of the student by the teacher. Illustrations in extension of principles may well serve as the basis of oral lessons by the teacher, but no attempt need be made in the first year to allow of the use of a text-book by the student, the object in all parts of the subject being training and not the acquisition of facts.

**MOTION**—Relative and absolute.

**REST**—Relative and absolute.

**LEVERS**—The three orders: balance, steelyard.

**PULLEYS**—Simple multiple block orders. Inclined plane and screw. Newton's law of motion simply treated. Energy, work, falling bodies, centre of gravity. Stable, unstable, and neutral equilibrium. Specific gravity of solids and liquids.

### Physics.

Air. Air and water. Heat. Air temperatures. The thermometer. The weather. Structure of the air. Compressibility. Expansion of gases. Diffusion of gases. Air pressure, the barometer. Relation of air to food manufacture. Sources of our food. Food of plants. Dust-moulds and bacteria of the air. Distribution of disease germs. Measurements of length, area, volume, mass, density.

### Electricity and Magnetism.

Natural and artificial magnets; permanent and temporary magnets. Polarity. Magnetic field strength of magnets, terrestrial magnetism, mariner's compass. Declination and inclination. Fundamental experiments with voltaic cells. Current flow and the true nature of a current of electricity. Conductors and non-conductors, their nature and uses. Simple detecting instruments. Galvanometer and the action of one current on another and of a current on a magnet. Determination of the legal units. Ampere, volt, ohm, their interrelation. Measurements of units, wheatstone bridge, ammeter, voltmeter. Generators (so-called) simply treated. Meaning of alternating and continuous currents. Motors treated as a special case of the magnet. Simple motors.

### TEXT-BOOKS AND BOOKS OF REFERENCE.

- General Science**—Caldwell & Elkenberry (Ginn & Co.). Price \$1.
- Laboratory Manual** for same. Price 50 cents.
- The Ontario High School Physics.**
- Laboratory Manual** for same.
- Elementary Practical Physics**—Watson (Longmans, Green & Co.).

A Laboratory Course of Practical Electricity—Archbold (Macmillan & Co., New York).

Elementary Lessons in Electricity and Magnetism—Silvanus Thompson (Macmillan & Co.).

Library of Practical Electricity—Tyrell Croft (McGraw Hill Book Co., 239 West Thirty-ninth Street, New York). Price \$14 per set.

#### Second Year.

##### English.

READING AND ORTHOGRAPHY—As prescribed for Advanced Course, Junior Grade.

WRITING AND SPELLING—As prescribed for Advanced Course, Junior Grade.

LITERATURE—As prescribed for Advanced Course, Junior Grade.

COMPOSITION—As prescribed for Advanced Course, Junior Grade.

Close correlation to be maintained between the lessons in above subjects and those in Civics, Industrial History, and Geography.

##### Business Forms and Usages.

Revise the work on book-keeping. Keeping time. Work and wages. Keep time sheets on work done in the shop. Insist on the time element counting on all shop-work—time is money.

##### Rights and Duties of the Citizen.

PROVINCIAL AFFAIRS—The Provincial Government. Municipal Government. Courts of Law. Education. Duties of the citizen.

NATIONAL AFFAIRS—The Empire. The Dominion and Provinces. How laws are made. How Parliament does business. The Premier and Council. Political parties. How elections are held. Departments of Government. Taxation. Money and banks.

#### TEXT-BOOKS AND BOOKS OF REFERENCE.

Canadian Civics—Jenkins.

Outline of Economics—R. E. Nelson (G. Bell & Son).

How We Pay Each Other—Wood (Macmillan Co.).

##### Mathematics.

ARITHMETIC AND MENSURATION—Problems in connection with the technical instruments in other departments. The use of scales, calipers, verniers, micrometers. The use of logarithms. The trigonometrical functions of an angle; functions of angles of 30, 45, 60; problems involving these angles.

ALGEBRA—As in Hall & Knight's Elementary Algebra, to the end of Chap. XXXI. Rectangular co-ordination, the graphical representation of a conic.

PLANE GEOMETRY—The work of the first year reviewed and its methods continued. Deductive geometry of the proposition and deduction, as in Hall & Stevens' Euclid, Books I. and III., with miscellaneous theorems and examples.

#### TEXT-BOOKS AND BOOKS OF REFERENCE.

An Introduction to Practical Mathematics—Saxelby.

A Course in Practical Mathematics—Saxelby. (Longmans & Co.).

Geometry—Hall & Stevens (Macmillan Co.).

Algebra—Hall & Knight.

Algebra—Borchardt.

##### Drawing and Design.

Workshop sketching; scale-drawing; tracing; blue-printing; tinting. Drawing from machine parts. Freehand perspective drawing.

**DESIGN**—Principles of design. Proportions. Spacings. Arrangements. Line harmonies. Colour harmonies. Appropriateness of design to material.

**ART GEOMETRY**—Pattern-drawing. Planning a design.

**DESCRIPTIVE GEOMETRY**—Orthographic projection. Points. Lines. Solids.

**LETTERING**—A clear, well-formed, rapid style.

Lessons in art appreciation.

### Shop-work.

**WOODWORK**—Individual projects of a more difficult nature than in first-year work. Community work on a larger scale. The problem should call for draughtmanship, design, and craftsmanship of a higher order than heretofore. Moreover, the time in execution and the cost thereof should be carefully noted.

**LATHE-WORK IN WOOD**—Work which calls for more modelling than in the first year. Face-plate and chuck turning. Finishing and polishing.

**METALWORK**—Forging: Continuation of the first year's work in forging.

Blacksmith's work: Exercises in splitting, upsetting, welding (simple) headings. Modelling in iron. Screw-cutting with stocks and dies and calculations for bolts and nuts and other threaded articles. Relations between articles and the best threads for these.

Fires: More detailed lessons on best temperature for iron and steel working. Chemistry of the fire. Oxidation, allowance for scaling. Manufacture of coke, commercially and on the hearth.

**SHEET-METAL WORK**—More advanced construction than in the first year. Cylinder, cone, and pyramid. Simple mouldings and joints. Peening down, burring, grooving, seaming, and the various joints used in sheet-metal work. Riveting, hot and cold, enlarging and reducing for sockets.

Solders: Tinman's fine, plumbers' and hard solder.

Fluxes: Acid, killed spirit, rosin, patent fluxes.

Lessons on the metallurgy of iron, steel, copper, zinc, tin, and lead.

**DRAUGHTING**—All problems in wood and metal work should be carefully drawn out; plans, elevations, sections, and developments should be made when necessary. A bill of material and cost should accompany each problem.

**MACHINE-WORK**—Simple reducing on lathe; rough and finish turning on English lathe; knurling; taper turning; polishing; drilling; countersinking; turning brass, iron, and tool-steel; grinding; centring work for lathe.

Shaper: Planing flat surfaces.

Limit measurements,  $\frac{1}{32}$ "  $\pm$  — Vernier gauge.

How to distinguish metals—Their chief features.

### Physics.

Review of the first year's work.

Ice, water, steam. Distillation, evaporation. Thermometer. Mechanical uses of water and air. Principles of Archimedes. Specific gravity. Hydrometer, siphon. The lift-pump. The hydraulic press. Climatic influences of bodies of water. Water-supply and sewage-disposal.

**HEAT**—Expansion of solids, liquids, and gases. Compensated pendulums. Chronometer balance-wheel. Thermostats. Temperature, thermometers and thermometric scales. Conduction, convection, radiation. Heating and ventilation of buildings.

### Electricity and Magnetism.

**VOLTAIC ELECTRICITY**—Chemistry of primary and secondary cells; electromotive force and capacity of primary and secondary cells. Polarization, depolarization, electrolysis, thermal effects. Ohm's Law. Calculations based on relation between currents and magnets. Oersted's experiments, Ampere's currents, Faraday's electromagnetic experiments. Induction and spark coils. Telegraph and telephone circuits and instruments. Conductors, insulators, series, and parallel connections.

**MAGNETISM**—Measurements of magnetic strength, saturation, Fleming's curves, retentivity, induced magnetism, solenoids, terrestrial magnetism, lines of equal inclination and declination.

**FRICTIONAL ELECTRICITY**—Electroscopes, proof plane, Faraday's laws, electrophorous, induction and influence machines, capacity condensers, thunder and lightning.

**MAGNETO ELECTRICITY**—Simple alternating currents, generators, production of alternating electromotive force. Commutators and commutation, hence continuous-current machines or so-called generators or dynamos. Simple series, shunt and compound generators and their characteristics. Transformers, simply treated. Motors, simple continuous-current motors, series and shunt, their characteristics and uses. Street-car motors. Controlling and reversing. Low and high tension, distribution, reasons for. Simple ideas of prime movers, steam-engines, oil-engines, gas-engines, and water-wheels, their horse-power and its conversion into equivalent electric power.

### Mechanics.

Revision of first year's work and fuller treatment undertaken of levers, etc.

**LEVERS**—Bent and compound, fixed and floating fulcrum, pulleys, wheel and axle, gear-wheels, trains, worm-gear, differential gears.

**INCLINED PLANE AND SCREW**—Calculations in angle and friction, simple screw-threads.

**SPECIFIC GRAVITY**—Archimedes' principle, hydrometer and hydrometer scales.

### TEXT-BOOKS.

Applied Mechanics—Cryer and Jordon.

Applied Mechanics—Jamieson (Chas. Griffin & Co., London).

### Chemistry.

Solution, crystallization, filtration, saturation. Natural waters, air in water, solids in water.

**AIR**—Oxygen and nitrogen, mixtures and compounds, combustion. Effect of plant-life on atmosphere. Effect of combustion and animal life on air.

**WATER**—Hydrogen. Preparation and properties. Chemical composition of pure water.

### Third Year.

#### English.

**ENGLISH COMPOSITION**—Same as for Matriculation.

**ENGLISH LITERATURE**—Same as for Matriculation.

**HISTORY**—Same as for Matriculation.

#### Business Forms and Usages.

**RIGHTS AND DUTIES OF THE CITIZEN**—The business man. Competition and high costs. Exports and imports. Industrial and scientific research. Commercial education. Banking, credit and capital. Exhibitions and advertising. Salesmanship.

### TEXT-BOOKS AND BOOKS OF REFERENCE.

Canadian Civics—Jenkins.

Outline of Economics—R. E. Nelson (G. Bell & Son).

How We Pay Each Other—Wood (Macmillan Co.).

### Mathematics.

Powers, roots, logarithms. Plotting of functions, maxima and minima. Graphic solution of equations in elementary cases. The linear equation. The quadratic equation. Ratio and variation, with practical applications. Determination of Linear Laws satisfied by results of a series of observations. Interpolation treated graphi-

cally and otherwise. Polar co-ordinates. Mensuration of irregular figures. Work done by a variable force. Rates of increase treated graphically so as to form a simple introduction to the study of the calculus. Chief theorems on the circle and triangle reviewed. Plotting of loci—ellipse and other conics, cycloid and allied curves. Properties of similar triangles. Reducing, enlarging, and their practical applications. Elementary trigonometry, including solution of right-angled triangle, easy heights and distances, area of triangle.

The whole of the above to be treated, as far as is possible, practically.

#### TEXT-BOOKS.

A Course in Practical Mathematics—Saxelby (Longmans, Green & Co.).

Practical Plane and Solid Geometry—Harrison (Macmillan).

Practical Trigonometry—Playne and Fawdrey (Copp, Clark Co.).

#### Drawing and Design.

Workshop sketching, scale-drawing, tracing, blue-printing, tinting, drawing machine parts.

DESIGN—Principles of design, spacing, proportion, appropriateness. Designs for wrought metal, sheet metal, terra-cotta, wood construction, decoration of woods. Designs for show-cards, labels, and for commercial work.

ART GEOMETRY—Pattern-drawing and planning-out of designs.

DESCRIPTIVE GEOMETRY—Orthographic projection of points, lines, solids, sections, intersections of planes.

PERSPECTIVE—Elementary.

LETTERING—A clear, well-formed, rapid style.

Lessons in art appreciation.

#### TEXT-BOOKS AND BOOKS OF REFERENCE.

Descriptive Geometry—H. F. Armstrong.

Elementary Perspective—L. R. Crosskey (Blakie & Son, London).

Art Geometry—Carroll.

Lessons on Decorative Design—Jackson (Chapman & Hall).

Art Education for High School—Prang.

#### Shop-work.

BENCH WOODWORK—Application of principles in mechanics carried out in carpentry and joinery. Problems seen in framing a wooden building. Walls and partitions. Roof framing. Construction of trussed girders and roof-trusses. Methods of calculating strains and stresses. Models constructed to scale. Use of the steel square as shortcut. Methods to geometrical results.

DRAUGHTING—Problems in roofing solved geometrically. Orthographic projection and sections of solids—the ellipse, parabola, and hyperbola.

MENSURATION OF CARPENTRY AND JOINERY—Revise square root. Areas. Graphical solutions. Figures bounded by curved lines, cubic measure.

MECHANICS OF CARPENTRY AND JOINERY—Resultant of two or more forces. Parallelogram of forces. Triangle of forces. Inclined forces on one plane, but not acting through one point. Parallel forces. Loaded beams. Stress diagrams for roof-trusses. Stress and strain. Shearing stresses. Methods of arranging beams. Bending moments. Calculation of the transverse strength of wooden beams. Deflection pulleys. Specific gravity.

SHEET-METAL WORK—Revision of radial line developments; parallel developments. Pipe intersections and tee joints. Machine operations; wiring, burring, setting down, seaming, turning.

FORGING—It will be understood that the student has already finished exercises in forging, drawing out, upsetting, shaping, bending, punching, welding, hardening,

annealing, brazing. He should now have considerable manipulative skill in both sheet-metal work and forging. Any additional projects should therefore demand an exercise of taste and an appreciation of that craftsmanship and decorative quality which is considered to be artistic in the best sense.

**ART-METAL WORK**—Such methods of workmanship as twisting, scroll-work, spindle shape spiral, interlacings, leaves, and ornaments may be undertaken, and appropriate methods of decorating sheet metal, such as embossing, spinning, chasing, etching, will all lend themselves to work having the highest educational value.

**DRAUGHTING**—The constructive drawings must all be carried out in the approved workshop style. Lettering and dimensioning should be neat and accurate and a schedule of material accompany each project.

**LATHE-WORK IN METAL**—The engine lathe and lathe tools—cutting speeds, turning taper turnings, boring, cutting internal and external threads, fitting by grinding. Simple and compound gearing.

The shaper: Planing flat surfaces, bevels, and keyways, methods of securing work to table.

Drill-press: Drilling holes accurately. Practice in use of jigs, reamers, boring bars.

Grinding: Care of tools, grinding flat surfaces, tapers, cylinders.

Limit measurements, .002" + — micrometer.

Manufacture of materials and their use.

#### TEXT-BOOKS.

Text-book of Advanced Machine Work—Smith (Industrial Education Book Co., Boston).

Handicraft in Wood and Metal—Hooper & Shirley (Batsford).

Modern Framed Structures, Vol. I.—Johnson, Bryan & Turneure (Wiley).

#### Physics.

Review of previous year's work.

Work and energy. Pulleys. Work done by water. Work done by heat. Work done by steam. Co-efficient of expansion of solids, liquids, and gases. Charles' Law. Gas thermometer. Absolute temperature. Measurement of heat. Thermal capacity—specific heat. Change of state. Freezing and boiling point of water. Determination of the heat of fusion of ice. Determination of heat of vaporization of water.

#### BOOKS RECOMMENDED

General Science, Part III.—Caldwell & Eikenberry

Ontario High School Physics.

Heat Engines—Ripper (Longmans, Green & Co.).

Gas Engine Principles—Whitman (Appleton & Co.).

#### Mechanics.

Energy and work. Horse-power. Power of falling water, water-wheels, overshot, undershot, breast wheels, Pelton wheels and turbines. Triangle, parallelogram, and polygon of forces.

**HYDROSTATICS**—Pressure and transmission of friction, head, flow, compression, and hydraulic machines. Hydraulic ram, water-hammer, buoyancy, floating bodies, metacentre and centre of buoyancy.

**SOUND**—Vibrations, periodic and aperiodic movements, hence music and noise. Vibrations of strings, plates, and columns of air. Waves and wave-lengths.

**LIGHT**—The nature and transmission of light—photometry. Reflections from plane surfaces and mirrors. Refraction. Lenses.

## TEXT-BOOKS.

Applied Mechanics—Cryer & Jordan.

Applied Mechanics—Jamieson (Chas. Griffin & Co., London).

**Electricity.**

In addition to the topics taken in the first- and second-year courses the following new work will be included. The recapitulatory work, whilst under the same heads, will of necessity be of an advanced character and will lead to problems of a practical nature—e.g., in dealing with calculations under Ohm's Law, instead of confining the problems to continuous current, alternating-current problems dealing with both resistances, reaction, and capacity will be undertaken.

New Topics—Electro-magnets, generator and motor fields. D.C. and A.C. magnets—calculations on same. Watt and power equations and problems. Electrical horsepower; kilowatt and kilo-volt; ampere.

Conductors; sizes, calculations, line drop. Line calculations, transmission and transmission lines.

Watt meters, indicating and integrating; single and polyphase meters; construction and use.

Magnets; permeability, induction, flux density, hysteresis, saturation, hysteresis losses. Induction, inductance, Lenz's Law.

Back E.M.F. computations of inductances. Transformers in detail.

Cycle, frequency A.C. generators, meaning of the terms instantaneous, mean, average, and root-mean. Square voltages.

Current in A.C. circuits. Ohm's Law in A.C. circuits. Phase relations between current and voltages in A.C. circuits—power factor. Lag-lead.

Alternating-current calculations—vector diagrams, circle diagrams.

Distribution and high and low tension. Single and polyphase. Induction and synchronous motors.

## TEXT-BOOKS AND BOOKS OF REFERENCE.

Ontario High School Physics and Laboratory Manual.

Library of Practical Electricity—Tyrell Croft (McGraw, Hill Book Co., New York).

**Chemistry.**

Carbon, carbon dioxide, carbon monoxide, coal, charcoal, coke, coal-gas, flame. Chalk, lime. Salt—common, sodium, and chlorine. Properties of spirits of salt. Bleaching-powder. Sulphur—sulphur dioxide and sulphurous acid. Sulphur trioxide and sulphuric acid. Acids, alkalies, and bases.

## HIGH SCHOOL HOUSEHOLD SCIENCE COURSE.

## First Year.

**English.**

READING AND ORTHOGRAPHY—As prescribed for Preliminary Course, Junior Grade.

WRITING AND SPELLING—As prescribed for Preliminary Course, Junior Grade.

LITERATURE—As prescribed for Preliminary Course, Junior Grade.

COMPOSITION—As prescribed for Preliminary Course, Junior Grade.

**Arithmetic and Mensuration.**

Pure and commercial arithmetic, as in Milne's Arithmetic, Book III. General principles of arithmetic and mensuration; application to common problems of the arts and trades. Book-keeping, business forms and usages; bills, receipts, cheques. Household budgets and accounts; collection of accounts.

## HOUSEHOLD PROBLEMS THAT REQUIRE A GIRL'S ATTENTION.

1. Enough practical measuring and weighing to be able to recognize quantities referred to in avoirdupois, liquids, dry and linear tables.
2. To quickly change one denomination or one fraction to another.
3. Capacity of household appliances—hot-water bottles, kettles, pails, baskets, coal-bins, jars, etc.; capacity and areas of rooms.
4. Wholesale and retail cost of materials; computation of lesson, cost per class, per pupil, etc.
5. Percentage discounts.
6. Comparison of cost of different fuels; reading of meters and familiarity with terms.
7. Insurance—house, life, accident, and industrial.
8. Comparison of foods; meats and their substitutes; home and factory produced foods.
9. Problems relating to customs duties; express parcel post; freight.
10. Household budgets and apportionment of income; keeping household accounts.
11. Various standard widths of common textiles considered in terms of cost as width varies.
12. Questions relating to floors, walls, and roofing; covering walls with paint and paper, floors with carpets and linoleums.
13. City problems—cost of street-cleaning, lighting, etc.
14. The metric system; weights and measures; standard units; household measurements.

## TEXT-BOOK.

Millie's Progressive Arithmetic, Book III.

(ANY TWO OF THE FOUR SUBJECTS IMMEDIATELY FOLLOWING.)

## 1. Latin.

As in Preliminary Course, Junior Grade.

## 2. French.

As in Preliminary Course, Junior Grade.

## 3. Mathematics.

ALGEBRA—As prescribed for Preliminary Course, Junior Grade.

GEOMETRY—As prescribed for Preliminary Course, Junior Grade.

## 4. Instrumental Music.

## Physiology.

Introduction to the human body and its fight against disease. Brief outline of the structure and functions of the main systems of the body and their relations to one another. Prevention and general provision for the care of illness in the home. Early evidences of disease, observation and recording of symptoms. Application of local remedies; application of roller bandage. Diets. Care and treatment of the baby. Effective work to lead to St. John Ambulance Examinations in Home Nursing, or Hygiene and Home Sanitation.

## TEXT AND REFERENCE BOOKS.

Essentials of Health—Stowell (The Educational Book Co.).

Hints and Helps on Home Nursing—Cosgrave.

Home Hygiene—Dr. Sykes.

Food and its Functions—Knight (Blackie & Sons).

**Dietetics, Cookery, and Table Service.**

The five food essentials; their chief sources, food value, and cost. Simple planning of seasonable, well-balanced family meals. Practice in the application of the principles of cookery to as wide a range of problems as possible in order to prepare students to do thorough practical work in later courses. Discussion of gas, coal, electricity, paper-bag and fireless cookery. Marketing—foodstuffs, sources and preparation; varieties; cost; choice and tests; visits to market; grocery and meat stores; dairies and manufactories. Table setting; decoration; serving. Care of the dining-room; kitchen; pantry.

**TEXT AND REFERENCE BOOKS.**

A Text-book of Domestic Science for High Schools—Matilda G. Campbell (Macmillan Co.).

Elements of the Theory and Practice of Cookery—Williams and Fisher (Macmillan Co.)

The Chemistry of Cookery—W. Mattieu Williams (Chatto & Windus).

**Science for Girls—Physics and Chemistry.**

Course to be treated from the popular side as well as from the scientific. Sunlight; plant-life; human life; fresh air; ventilation; sleep; respiration; physical exercise; mental exercise.

**AIR—Theory:** Its relation to fire; coal-range; draughts; gas-range; air has weight; pressure of atmosphere; warm air lighter than cold; usual impurities—dust, bacteria, organic gases; ventilation and ventilators. The microscope and simple history of bacteriology; dangers of house-fly, mosquitoes, etc.; bacteria, yeasts, and moulds in the home; sterilization; harmless and harmful preservation of food, wood, metals, etc. Effects of fresh air, sunshine, drying, and cold storage. Study of disinfectants. The barometer. The thermometer.

**Laboratory Practice:** Experiments to show properties of air and to prove theories taught. Monthly graphic representations to be made from daily readings from the barometer and thermometer.

**WATER—Theory:** Water as a solvent; hard, soft; filtering; its relation to health; cleanliness and cleaning; evaporation; difference between evaporation and boiling; rain-water; distillation; condensation; water supply and pressure.

**SOLIDS, LIQUIDS, GASES—Solids,** soluble and insoluble. Crystals and crystallization. Study of gas obtained from chalk. Physical and chemical change. Preparation of carbon dioxide (carbonic-acid gas). Burning and breathing; burning candle; burning coal-gas; burning lamp-oil. Fermentation; properties of carbon dioxide. Acids, simple metals and salts; carbonates; baking-powders. Vinegar and its properties; the making of vinegar by fermentation; effect of boiling upon the acidity of vinegar; neutralization of acidity of vinegar; action between acids and carbonates; action between vinegar and lime-water; action between sulphuric-acid and acetates; properties of acetic acid; action between acetic acid and iron; preparation of sugar of lead; preparation of acetic acid. Properties and use of tartaric acid; action between tartaric acid and sodium carbonate; presence of carbon in tartaric acid; cream of tartar; preparation of Rochelle salts, argol, seidlitz powders.

**CLEANSING AGENTS—Theory:** Cleansing processes and the use of soap. How to make caustic soda. To remove grease-stains; ink-stains; fruit-stains; effect of strong caustic soda upon cloth; effect of strong bleaching-powder upon cloth. The properties of suet; how to make soap from suet; stearic acid; oleic acid; make a soap from oleic acid; the separation of oleic acid, sodium oleate. Soap and hard water. Properties of glycerine.

**Laboratory practice** in proving theories taught; in watching the action of gluten, starch, sugar, and alcohol under various conditions. Tests with iodine and Fehling's solution, etc.

## TEXT AND REFERENCE BOOKS.

Physics and Chemistry, Books I., II., III.—Gregory & Simmons.  
 Science of Common Life—Simmons & Stenhouse.  
 Physics of the Household—Lynde.  
 Elementary Household Chemistry—Snell.  
 The Science of Common Life—Coppock (Allen & Co., London).  
 The Chemistry of Housecraft—Hall & Grünbaum (Blackie & Co.).  
 Waddell's School Chemistry (The Macmillan Co.).

**Household Art.**

**DRAWING, DESIGN, AND ART HANDICRAFT**—Work to be correlated with the sewing and dressmaking, as well as with the care and decoration of the home and civic life generally. Consideration of the economic value of beauty. Formation of good taste and appreciation of colour and beauty of form and arrangement.

## BOOKS OF REFERENCE.

Practical Geometry for Art Students—John Carroll (Burns & Oates, London).  
 Pattern Drawing and Design—John Carroll.  
 Drawing from Models and Objects—John Carroll.  
 Lessons on Decorative Design—Frank G. Jackson (Chapman & Hall).  
 Drawing for High Schools—Prang.  
 Needlecraft in the School—M. Swanson (Longmans, Green & Co.).  
 Industrial Drawing for Girls—Edith C. Hammond (Redfield Bros., New York).  
 Needlework in School—Swanson & MacBeth (Longmans, Green & Co.).

**Sewing, Embroidery, and Garment-making.**

**SEWING, HAND**—Practical application of common stitches and seams as prescribed for the grades; technic to be emphasized.

**SEWING, MACHINE**—History of sewing-machines; use and care of machines and attachments.

**EMBROIDERY**—Simple stitches taught in order to work out designs from design class.

**GARMENT-MAKING**—Draughting; two pieces draughted and a commercial pattern used for a third.

**TEXTILE STUDY**—Cotton, various fabrics in relation to use, laces and embroideries suitable for trimming, historic study of textiles; varieties; prices; imitations; tests, etc.

**ECONOMICS OF DRESS**—Relation to outer garments; suitability in relation to health, use, and income. Comparison of home- and factory-made clothing. Development of the factory system.

Students supply their own materials subject to the approval of the instructor.

## TEXT AND REFERENCE BOOKS.

Dressmaking—Jane Fales (Scribner, New York).  
 Dresscutting and Making—E. & M. Wallbank (Pittman, London).  
 French Pattern Modelling for Professionals—Amy J. Reeve (Longmans, Green & Co.).

**Vocal Music.**

Voice-culture—the voice, its use and preservation; breathing and breathing rules and exercises. Vowels and consonants, their treatment. Rhythm, expression, interpretation, phrasing. Vocal exercises for daily practice for the attainment of agility and evenness of tone. Sight-singing and ear-training. Knowledge and use of the modulator and stave. Songs, two- and three-part. Criticism and appreciation of the works of the great masters.

**Physical Culture.****Second Year.****English.**

READING AND ORTHOEPY—As prescribed for Advanced Course, Junior Grade.

WRITING AND SPELLING—As prescribed for Advanced Course, Junior Grade.

LITERATURE—As prescribed for Advanced Course, Junior Grade.

COMPOSITION—As prescribed for Advanced Course, Junior Grade.

**Arithmetic and Mensuration.**

Review problems of first year; metric system; measures and equivalents; measures of temperature; percentage; interest; discounts; banking. Household accounts. Fractions. Algebra. Mathematics necessary for experimental science work.

**TEXT-BOOKS.**

Milne's Progressive Arithmetic, Book III.

Hamblin Smith's Arithmetic. Revised edition.

Hall & Knight's Elementary Algebra.

(ANY TWO OF THE FOUR SUBJECTS IMMEDIATELY FOLLOWING.)

**1. Latin.**

As in Advanced Course, Junior Grade.

**2. French.**

As in Advanced Course, Junior Grade.

**3. Mathematics.**

ALGEBRA—As in Advanced Course, Junior Grade.

GEOMETRY—As in Advanced Course, Junior Grade.

**4. Instrumental Music.**

Piano or violin.

**Physiology.**

The systems of the body and their functions. The nervous system. The circulatory, respiratory, osseous, and muscular systems. Emergency treatment of injuries to bony and muscular systems. Emergency treatment to injuries of skin and underlying tissues. Effective work to lead to St. John Ambulance Examination on First Aid to the Injured.

**TEXT AND REFERENCE BOOKS.**

Essentials of Health—Stowell (The Educational Book Co.).

Food and its Functions—Knight (Blackie & Sons).

First Aid to the Injured—Dr. J. Cantlie.

**Dietetics and Cookery.**

Heat measurements. Heat and work. The calorimeter and one hundred caloric portion. Daily requirements as regards muscle-building, energy-furnishing, and body-regulating materials. Balancing; occupation, climate, sex, age, etc., considered. Children's diets and special normal diets considered. Meals planned and worked out to meet requirements in food values at varying costs. Serving meals as worked out in dietary study.

**TEXT AND REFERENCE BOOKS.**

A Text-book of Domestic Science for High Schools—Campbell (Macmillan).

Food and its Functions—Knight (Blackie & Sons).

The Chemistry of Cookery—W. Mattieu Williams (Chatto & Windus).

**Physics.**

Mechanical appliances in the home; lever wheel and axle; pulley and screw. Units of work; the law of work. Measurement water-supply; laws relating to pressure; Pascal's Law; the Law of Archimedes; density. Gases; atmospheric pressure; Boyle's Law; Henry's Law. Air appliances—pumps, pneumatic tank, water-supply system; the hydraulic ram; vacuum cleaners; the fire-extinguisher; traps; the gas-meter. Appliances which use compressed air. Heat in the home; the fireplace. Expansion—thermometers; expansion of gases in cooking; hot-air heating; hot-water heating system; movement of heat; conduction; convection, and radiation. Cooking utensils; fireless cooker; thermos bottle. Ventilation; measurement of heat. The British Thermal Unit and the Caloric.

Laboratory practice and experiments throughout.

**TEXT AND REFERENCE BOOKS.**

Laboratory Physics of the Household—Lynde (Macmillan Co.).

Household Physics—Lynde (Macmillan Co.).

Household Physics—Butler (Whitcomb & Barrow).

**Chemistry.**

The subject-matter; decomposition and combination; elements; compounds and chemical notation. The Atomic theory; combustion; relation of combustion to heat; heat of combustion; spontaneous combustion. The calorimeter. Fuels, solids, liquids, gaseous. Light and illuminants—gas, acetylene, electric lighting. Acids and salts; acid salts; alkalies; bases and basic oxides. Reactions of acids with bases and with basic oxides. Ionization; metals; iron-rust; rust-stains on fabrics. Strong and weak acids and bases. Hydrolysis of salts. Hard water; the softening of water; ammonia. The Ammonium Radicle.

LABORATORY WORK—Experiments with equipment; electrolysis of water; destructive distillation of wood or coal; removal of oxygen from the air. Generation of carbon monoxide from carbon dioxide and carbon. The spectroscope, etc.

**TEXT AND REFERENCE BOOKS.**

Household Chemistry—Snell.

Gregory & Simmons, Stages I., II., III.

The Science of Common Life—Coppock (Allen & Co., London).

**Household Art.**

DRAWING, DESIGN, AND ART HANDICRAFT—Artistic principles involved in the clothing of the person; the proportions of the human form; true use of line, form, texture, colour, harmony, contrast in connection with obtaining desired effects. Principles involved in securing harmony between persons. General instruction in the composition of ornament and figure. Study of historical styles in dress. Costume-designing.

DRESSMAKING—Draughting and making a plain wool skirt, blouse or middie in cotton, and plain dress in cotton or linen material.

TEXTILES—History varieties, prices, tests of suitable fabrics for the problems to be undertaken.

ECONOMICS OF DRESS—Planning a clothing budget for a high-school girl; the care of the girl's wardrobe.

Students supply their own materials subject to the approval of the instructor.

**Botany.**

Seeds and germination; buds; markings on stems; catkins; leaves—arrangement, accurate description, venation, modifications, relations to root, sunlight, and surroundings; experiments to demonstrate transpiration; test for starch and explain formation; oxygen essential to plant-life; roots absorb water (explain);

root forms and growth; rhizomes and tubers; flower types (as illustrated by families mentioned below); carpels and placentation; double flowers; study of two or three weeds; a cone; branching of lilac (or similar form) and conifers; pollination (Groom, Chap. XI.); dispersal of seeds (Groom, Chap. XIII.); plants and habitat (pupils should show some acquaintance with the common flowering plants of their neighbourhood); phenological record; idea of family, genus, and species.

Pupils are expected to recognize such common and well-marked families as Ranunculaceæ, Cruciferae, Papilionaceæ, Rosaceæ, Ericaceæ, Compositæ, Liliaceæ, Labiatæ, Scrophulariaceæ, Umbelliferae.

Care should be taken not to make this course too formal by too much dependence on the text-book. The ordinary nature-study methods should prevail.

The subject of Botany to be studied concurrently with the conducting of a school-garden.

#### TEXT-BOOK.

Elementary Botany—Groom & Penhallow (Gage & Co.).

#### Vocal Music and Elocution.

**MUSIC**—More advanced training than first year, with increased difficulty in part songs, glees, and madrigals.

**ELOCUTION**—The elements of elocution. The voice as a musical instrument. The breath; breathing and gesture exercises; nose-breathing; breath-pauses and throat-rests; the breath-sounds of speech; phonation; vocal consonants; vowels; resonance; voice-production exercises; register; flexibility; distinctness; selections for declamation.

Musical and dramatic appreciation; consideration of the work of the great masters.

#### Physical Culture.

#### Third Year.

##### English.

READING AND ORTHOEPY—As prescribed for Matriculation.

WRITING AND SPELLING—As prescribed for Matriculation.

GRAMMAR—As prescribed for Matriculation.

LITERATURE—As prescribed for Matriculation.

COMPOSITION—As prescribed for Matriculation.

#### Arithmetic and Mensuration.

Problems in measures and equivalents. Measurements of temperature. Percentage. Interest, discounts, banking. Household accounts. Thorough training in the metric system. Fractions. Algebra (sufficient to conduct experiments in science-work).

#### TEXT AND REFERENCE BOOKS.

Milne's Progressive Arithmetic, Book III.

Hamblin Smith's Arithmetic (Revised edition).

Hall & Knight's Elementary Algebra.

(ANY TWO OF THE FOUR SUBJECTS IMMEDIATELY FOLLOWING.)

#### 1. Mathematics.

1. ALGEBRA—As prescribed for Matriculation.

2. GEOMETRY—As prescribed for Matriculation.

3. TRIGONOMETRY—As prescribed for Matriculation.

#### 2. Latin.

As prescribed for Matriculation.

**3. French.**

As prescribed for Matriculation.

**4. Instrumental Music.****Physiology, Home Nursing, Home Hygiene, and Advanced Work in First Aid.**

Effective work must be covered in order to prepare for the second or voucher examination or the medallion of the St. John Ambulance Society.

**TEXT-BOOK.**

First Aid to the Injured—Dr. J. Cantlie.

**Science for Girls—Physics.**

Heat capacity, specific heat, latent heat; application of latent heat; refrigerator; freeing mixtures; artificial-ice machine; steam heating; steam cookers; distillation; evaporation; dew-point; boiling-point; why clothes dry; causes of cloud, rain, hail, snow, and dew; change in boiling-point. Sources of heat; heat and work. Electricity in the home—household electrical appliances; electric bulbs; magnetism and the electromagnet; the electric motor in the home; electric heating; cooking and lighting appliances; electric iron, coffee percolator, oven, etc.; the incandescent lamp; electrical terms and measures—the ampere, ohm, volt, watt. Light in the home—arrangement of lighting fixtures in the home; intensity of illumination; nature of light. Reflection and refraction of light; laws of reflection; laws of refraction; lenses and optical instruments. Colour—composite nature of white light; the rainbow; theory of colour vision; pigments. Sound—how sound is produced; nature of sound-waves; noises and musical sounds; pitch, music, and musical instruments.

**Chemistry.**

Organic radicles; hydrocarbons and alcohols; esters and fats; hydrolysis of esters; saponification. Soaps—commercial soaps, foreign ingredients in commercial soaps; special soaps and scouring-powders. Solution and emulsification of fats. The cleaning of fabrics. The general composition of foods—carbohydrates. The functions of food. The digestion of foods; foods of vegetable origin and of animal origin. Chemistry of textiles, bleaching, blueing, dyeing.

**TEXT AND REFERENCE BOOKS.**

Household Chemistry—Snell.

Gregory & Simmons, Stages I., II., III.

The Science of Common Life—Coppock (Allen & Co., London).

**Botany.**

Amplification of the work of the second-year course. Conducting the school-garden.

**Household Art.**

DRAWING, DESIGN, AND ART HANDICRAFT—More advanced work in dressmaking, millinery, and crafts generally than was received in second year. Costume-designing, etc.

**Vocal Music and Elocution (Voice Exercises).**

MUSIC—Solos, part-songs, glees, madrigals.

ELOCUTION—Development of ease, freedom, and distinctness in articulation; flexibility of the organs of speech; creative processes as opposed to imitative methods; stimulation as opposed to coaching; literary appreciation *versus* technical analysis.

Musical and dramatic appreciation; consideration of the work of the great masters.

**Physical Culture.**

## NATURE STUDY COURSE IN FOODS.

FOR RURAL SCHOOLS WHERE THE COOKING OF HOT LUNCHES IS UNDERTAKEN.

Forty half-hour lessons during the school year—A to be followed by B the same week. To be given in a class-room as an ordinary lesson.

**Equipment.**

Set of 15 food charts (Superintendent of Documents, Washington, D.C., U.S.A.) .....	\$1 00
Registry of Foods, by R. W. Goldsbury (Whitcombe & Barrows, Huntington Chambers, Boston, U.S.A.) .....	1 10
1 enamel plate .....	10
1 small spirit-stove or oil-stove .....	35
1 enamel cup and saucer .....	25
1 small enamel saucepan and lid .....	25
1 vegetable-knife .....	10
1 tablespoon, 1 teaspoon, 1 fork .....	15
	<hr/>
	\$3 30

Many of these the students might donate to save expense, also flour-bags to act as dish-towels. A bowl for washing up would be a convenience.

Samples of the following would greatly assist: Tea, fermented and unfermented, of different grades; coffee, similarly, and cocoa; cereals of all kinds, whole and ground, etc.; dried fruits, sugars of all kinds; milk in its component parts.

The price of all food materials used should always be discussed, including the relative cost of 1 cup of flour, sugar, oatmeal and other cereals, butter, etc.

**A.—Water.**

Sources; appearance; taste; hard and soft; detergent power; impurities; different forms (ice, etc.). (Sugar, salt, cold water.)

**B.—Water.**

Amount needed per day; uses in body; how taken; foods rich in water; effect of heat on water; simmering and boiling; boiling as a means of purifying and softening; water rate in local city; country and city water-supplies. (Saucepan, cold water, heat to turn all water to steam, examine residue.)

**A.—Tea.**

Source; where grown; how prepared for sale; various kinds and varieties; cost. (Tea of various kinds and preparation.)

**B.—Tea Infusion.**

Method of preparing; properties of infusion; when well and ill prepared; use of tea in dietary, people for whom suitable; tea infusion on leaves 3, 6, and 12 minutes, respectively, to be tasted and results noted. (Tea; boiling water.)

**A.—Milk.**

Milk as a food for babies and calves; food principles illustrated by milk and chief use of each; separated or skim milk, its food value; cost of milk, separated milk; cream; absorbability of milk; diseases from milk; care of milk in dairy, transit, and home. (Milk, onions, milk exposed to dust, milk in its component parts.)

**B.—Milk and Junket.**

Review—composition and food value; digestibility of milk; illustrate by babies; explain rennet and its action on milk, compare with processes in human stomach; make junket; deduce why milk should be stirred slowly, not taken quickly. (Milk, sugar, junket tablet, nutmeg.)

**A.—Cocoa.**

Source; nature; how prepared for sale; composition; food value; chocolate and cocoa prepared; pictures of cocoa trees, pods, and cocoa powder in process of manufacture. (Cocoa samples.) Price.

**B.—Cocoa (Beverage).**

Review composition; method of preparing cup of cocoa; need for boiling; comparison of tea and cocoa for food value and preparation. (Cocoa, sugar, milk, boiling water.)

**A.—Fruits (Acid and Salt-supplying).**

Classification; test for sugar, water, cellulose, and acids; dietary value; three methods of preserving fruits. (Fresh fruits, dried fruits, canned fruits, jam, jelly.)

**B.—Fruits.**

Review composition; digestibility of raw and cooked; cellulose; effects of cooking; methods of preparing and cooking fresh and dried; prepare an orange; stew prunes previously soaked. (Orange, six prunes, water, sugar, lemon, or fruit salad.)

**A.—Cereals (Quick Fuel-supply).**

Name explained; kinds; sources; products; test for starch (sugar when chewed); cellulose; use of cereals to the plant. (Samples of whole grain, ground—coarse and fine—grains, other preparations of grains; a whole ear of corn or barley; plate with small samples of flour, salt, cornmeal, baking-soda, corn-starch, etc., and iodine.)

**B.—Cereals.**

Review composition; explain digestion of starch; need for long cooking; make lumpy and smooth porridge, turn on to a plate and compare; make smooth last and continue to cook same for  $\frac{1}{2}$  hour, compare for taste with that cooked 5 minutes; methods of preparing and cooking. (Fine oatmeal, boiling water, salt.)

**A.—Starch.**

Sources; nature; use in body; effect in cold and boiling water; use in laundry-work.

(Starch, cold water, boiling water.)

**B.—Starch Sauces (Fuel Foods).**

Review porridge; three methods of separating starch grains; thickening properties; make three sauces of varying thickness; effect of boiling; time to boil, need of boiling, sweet and savoury sauces. (Starch, sugar, butter, cold and hot water.)

**A.—Wheat (Fuel, Muscle and Bone Builder).**

Part of plant; storehouse; structure of grain; various grades and kinds of flour; food value of these (whole wheat and various kinds of flour from it).

**B.—White Flour.**

Test for starch and gluten; nature, use in diet, use in bread-making of gluten. (Flour, cold water, starch from flour, a good gluten-ball, well cooked.)

**A.—Sugar (Fuel Food).**

Sources; manufacture; kinds; use in body; effect of too much sugar on appetite. (Pictures of sugar cane and beets; or various grades of sugars.)

**B.—Sugar.**

Review composition and uses; effect of heating to charring point; make small quantity of fudge; discuss when candy to be eaten; home-made *vs.* bought candy. (Brown sugar, milk, butter, flavouring.)

**A.—Cheese (Fuel Food and Tissue-builder).**

How prepared; various kinds; value in diet. (Rennet, sour milk, different kinds of cheese.)

**B.—Cheese.**

Composition; food value; digestibility; effect of dry and moist heat on cheese; methods of cooking; make cottage cheese. (Sour milk, salt, pepper, cheese-cloth.)

**A.—Eggs (Tissue-builder).**

Seven parts of an egg; food value of an egg; illustrate by little chick (2 eggs); cause of eggs decaying; preservation of eggs.

**B.—Eggs.**

Review composition; effects of heating out of shell by dry heat and moist; eggs cooked in shell three ways; deduce directions for cooking eggs (4 eggs).

**A.—Vegetables (Salt-supplying).**

Classification as to parts of plant; food value; test for starch; test for sugar; test for cellulose and water. (Vegetables of all kinds.)

**B.—Fresh Vegetables (Salt-supplying).**

Review composition and uses; preparation of various kinds for cooking; methods of cooking discussed. (Carrots, turnip, beet, onion, cabbage, green beans.)

**A.—Dried Vegetables (Tissue-builders).**

Legumes; storehouse of food; composition; food value; contrast with greens and roots; cost of legumes; foods to combine with legumes. (Legumes of various kinds.)

**B.—Potatoes (Salt and Fuel-supplying).**

Composition; food value; methods of preparing and cooking; cooked in skin and without; test water for starch. (Two potatoes, boiling water.)

**A.—Green Vegetables (Salt-supplying).**

Composition and value in diet; discuss vegetable gardens; kinds which may be grown. (All kinds of greens, wild and cultivated.)

**B.—Salads.**

Kinds of vegetable cold salads, cooked and uncooked, their preparation; prepare a simple salad and dressing. (Salad material, cream, sugar, vinegar, salt, pepper.)

**A.—Meat (Tissue-builder).**

External structure; rules for selecting; care of meat; tender and tough meat, where found. (Diagram of ox and sheep; borrow a good joint, if possible.)

**B.—Meat.**

Internal structure of lean meat; contents of meat-tubes; connective tissue; apply dry heat to meat. (Scraped meat in cold water, piece of boiled meat, heat meat-juice.)

**A.—Fish (Tissue-builder).**

Classification; local kinds available; structure; compare with meat; cost compared with meat; rules for selecting; care of fish. (A whole fresh fish.)

**B.—Fish.**

Composition; compare with meat for food value and digestibility; soak fish in water; apply dry heat to fish and boil a piece of fish; compare with meat; discuss methods of cooking; steam small piece of fish. (Small piece of cooked meat, raw fish.)

**A.—Yeast (Raising Agent).**

Nature; growth; activity; four essentials for growth; result of growth; use of yeast in bread-making; test for good compressed yeast. (Dry and compressed yeast, fruit-juice fermenting.)

**B.—Yeast.**

Review former lesson; three forms of yeast; perform eight experiments to show the best conditions for fermentation by yeast-plant in bread-making. (Yeast, flour, sugar, cold and hot water, boiling water, salt.)

**A.—Soda and Cream of Tartar (Raising Agent).**

Sources; nature; manufacture; texture; cost; effect of uniting and adding moisture; baking-powder. (Soda, cream of tartar, cold and hot water.)

**B.—Soda and Acids.**

Review their effect on each other; use of carbonic-acid gas in cookery; six experiments to illustrate how to use to produce most  $\text{CO}_2$ . (Soda, cream of tartar, sour milk, molasses, vinegar, cold and hot water.)

**A.—Table-setting.**

Things required for general and personal use for dinner; how to set table; illustrate on blackboard. (Ask students to bring these for next lesson.)

**B.**

How to set and wait at table; table etiquette; how to clear away after a meal. (Table linen, silver, cutlery, china, flowers.)

**A.—Menus.**

Directions as to the choice of dishes for one day's meals.

**B.—Flowers arranged for Table Decoration.**

(High and low vases for long and short-stalked flowers, wild and cultivated.)

NOTE.—A preliminary course might be given on the above plan dealing with choice, manufacture, cost, at one lesson, and cleaning and care at the next lesson of the following: Sink, floor, windows, silver, cutlery, white wooden utensils, finished woodwork, tin, enamel, and aluminium ware, furniture, hair and household brushes, kitchen range, soap, scouring agents.

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## PROMOTION.

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### Public Schools.

There must be in all Public Schools a general classification at the end of each term. Pupils should be transferred to a higher or lower class whenever it appears that their individual interests require it, without regard to the periodical reorganization of classes.

Examinations held for the purpose of classifying the pupils of a graded school shall be oral for classes below the Intermediate Grade, but in all classes the judgment of the teachers who have respectively taught the pupils during the preceding term should chiefly determine the promotion list.

The Department will hold annual examinations on the work of the Senior Grade, and will issue certificates of High School admission to candidates who obtain at least 34 per cent. on each subject and not less than an average of 50 per cent. on all subjects.

These examinations for admission to High Schools will be held on Monday, Tuesday, and Wednesday preceding the last Friday of June at all places where High Schools are in operation, and at such other centres as will be determined and announced by the Department from year to year.

Pupils of Public Schools in a school district having a High School, after passing a satisfactory examination and being declared eligible for promotion from a Public School to a High School, shall not be received as pupils in the graded schools of such district.

All pupils of British Columbia schools (both public and private) must hold High School Entrance Certificates before being eligible for admission to a High School. Any pupil holding a High School Entrance Certificate from another Province, or any pupil who can produce satisfactory proof of having done High School work elsewhere, may be admitted to a High School on probation, subject to the approval of the Department.

### High Schools.

The principals of all High and Superior Schools shall hold promotion examinations at the end of the school-year or during the school-year, or both. These examinations should take the form of either oral or written tests. The promotion lists should, however, be largely determined by the assistant teachers who have taught the pupils. Students who wish to enter the Normal School or to secure non-professional standing for teachers' certificates must write off the examination set by the Department of Education.

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### TEACHERS' CERTIFICATES.

The designation and validity of Teachers' Certificates shall be as follows:—

- (a.) Academic Certificate, valid for life, shall entitle the holder to teach in any position in a Public School or in a High School;
- (b.) First-class Certificate, valid for life, shall entitle the holder to teach in any position in a common school, in a graded school, or in a superior school;
- (c.) Second-class Certificate, valid for life, shall entitle the holder to teach in any position in a common school or in a graded school;
- (d.) Third-class Certificate, valid for three years, or for life, according to grade of Normal School Diploma, shall entitle the holder to teach in any position in a common school, or to fill the position of assistant in any graded school;
- (e.) Temporary Certificate, valid until the next examination of teachers, shall entitle the holder to teach temporarily in any school.

The qualifications for Teachers' Certificates of the various grades follow:—

*Academic Certificate—*

- (a.) A degree in Arts, in Science, or in Literature of recognized British, Canadian, or Colonial Universities; or a Senior Academic Certificate; or two years' standing in Arts or Science of the University of British Columbia;
- (b.) A Preliminary or an Advanced Certificate of the Provincial Normal School, or of other Normal School approved by the Council of Public Instruction.

*First-class Certificate—*

- (a.) A Senior Grade Certificate; or a Senior Matriculation Certificate; or first-year standing in Arts or in Science of the University of British Columbia;
- (b.) A Preliminary and an Advanced Certificate of the Provincial Normal School, or of other Normal School approved by the Council of Public Instruction.

*Second-class Certificate—*

- (a.) An Intermediate Grade Certificate; or a Junior Matriculation Certificate of the University of British Columbia;
- (b.) A Preliminary and an Advanced Certificate of the Provincial Normal School, or of other Normal School approved by the Council of Public Instruction.

*Third-class Certificate—*

- (a.) An Advanced Course, Junior Grade Certificate, or a Third-class Non-professional Certificate issued by the Department of Education for British Columbia;
- (b.) A Preliminary Normal School Certificate (Third Class, valid for three years); a Preliminary and an Advanced Certificate of the Provincial Normal School, or of other Normal School approved by the Council of Public Instruction (Third Class, valid for life).

#### Subjects of Examination.

(a.) For an Academic Certificate, the subjects of examination shall be the same as those for the Senior Academic Course of High Schools, but all candidates who have not already passed the Senior Grade examination prescribed for High Schools must also take sections B, C, and D of the Senior Grade Course.

(b.) For a First-class Certificate, the subjects of examination shall be the same as those for the Senior Grade Course of High Schools.

(c.) For a Second-class Certificate, the subjects of examination shall be the same as those for the Intermediate Grade of High Schools.

(d.) For a Third-class Certificate, the subjects of examination shall be the same as those for the Junior Grade of High Schools, except that only one of the following will be required: Physiology, Latin, Greek, French, German. Candidates who have not completed, in one of the High Schools of this Province, the work prescribed for

the Preliminary Course, Junior Grade, must write an examination not only on the subjects of the Advanced Course, Junior Grade, but also on the subjects of Arithmetic and Drawing of the Preliminary Grade.

#### Art Teachers.

Special Teachers or Supervisors in Art in both Public and High Schools must hold British Columbia Certificates of Qualification. These certificates will be granted to applicants holding Art Specialist Certificates from other Provinces of the Dominion, or to those having approved professional standing and who hold certificates from any recognized institution in either the United States or the United Kingdom. Every application for a certificate must be accompanied with the usual fee of \$5 and a satisfactory testimonial certifying to the good moral character of the applicant.

#### Commercial Teachers.

Teachers of Commercial subjects in High Schools must hold British Columbia Certificates of Qualification. These certificates will be granted to applicants holding Commercial Specialist Certificates from other Provinces of the Dominion, or to those having approved professional standing and who hold certificates from any recognized institution in either the United States or the United Kingdom. An Assistant's Commercial Certificate will be granted to an applicant who holds a British Columbia Third-year Course Commercial Diploma together with a Preliminary or Advanced Diploma from a British Columbia Normal School or other approved Normal School. Every application for a certificate must be accompanied with the usual fee of \$5 and a satisfactory testimonial certifying to the good moral character of the applicant.

#### Domestic Science Teachers.

Every Instructor in Domestic Science must hold a British Columbia Instructor's Certificate of Qualification. Each applicant for this certificate must have had at least two years' training; hold a satisfactory diploma from one of the recognized training colleges in Canada, the United States, or the United Kingdom; and hold a Public School Teacher's Certificate, or have had other approved professional standing. Every application for a certificate must be accompanied with the usual fee of \$5 and a satisfactory testimonial certifying to the good moral character of the applicant.

#### Manual Training Teachers.

Every Instructor in Manual Training must hold a British Columbia Instructor's Certificate of Qualification.

The following Instructor's Certificate shall be granted after July, 1913:—

(a.) Temporary Certificate, valid until June 30th next after date of issuance.

(b.) Permanent Certificate, valid for life.

Every applicant for a Temporary Certificate must have had approved experience in manual work, and hold a Public School Teacher's Certificate or have had other approved professional training. Every applicant for a Permanent Certificate must hold a First-class Manual Training Certificate, and must hold a Public School Teacher's Certificate or have had other approved professional training. Every application for a certificate must be accompanied with the usual fee of \$5 and a testimonial certifying to the good moral character of the applicant.

Certificates from similar institutes to the following will be recognized:—

Swedish Diploma (Näås).

German Diploma (Leipzig).

City and Guilds of London Institute (England).

Guelph College (Ontario).

Macdonald College (Quebec).

All applicants for Teachers' Certificates must be at least eighteen years of age. A registration fee of \$5 must be forwarded with the application for a certificate.

## FORM OF APPLICATION FOR TEACHER'S CERTIFICATE.

(Post-office Address.)

(Date.)

SIR:

Being of the full age of eighteen years, I hereby make application for a British Columbia First (or as the case may be) Class Teacher's Certificate.

I enclose herewith certificate of moral character and fee of \$5, and under separate cover am forwarding to your address my High School and Normal School Certificates.

I am,

Yours truly,

.....  
(Name in full.)

To the Superintendent of Education,  
Victoria, B.C.

## EXAMINATION SCHEDULES.

## High School Entrance Examination.

The examinations for admission to High Schools will be held on Monday, Tuesday, and Wednesday preceding the last Friday in June. These examinations will be held at all places where High Schools are in operation, and at such other centres as will be determined and announced by the Department from year to year. The examinations will be conducted according to the following schedule:—

## SCHEDULE A.—HIGH SCHOOL ENTRANCE EXAMINATION.

DATE.	SUBJECT.	A.M.	SUBJECT.	P.M.
Monday .....	Seating of candidates .....	8.45 to 9	English Literature .....	1 to 3
	British History .....	9 to 10.30	Reading .....	3 to
	Nature Lessons .....	10.45 to 12		
Tuesday .....	Arithmetic .....	8.45 to 10.45	Grammar and Composition .....	1 to 3
	Dictation and Spelling .....	11 to 12	Reading .....	3 to
Wednesday .....	Geography .....	8.45 to 10.15	Drawing .....	1 to 3
	Canadian History .....	10.30 to 12		

## Ordinary High School or Teachers' Course.

The examination will be held simultaneously at all places where High Schools or Superior Schools are established. The examination, which will follow as closely as possible the schedules given below, will begin on the Monday preceding the last Friday in June.

## SCHEDULE A.—ADVANCED COURSE, JUNIOR GRADE OR THIRD-CLASS CERTIFICATE.

DATE.	SUBJECT.	A.M.	SUBJECT.	P.M.
Monday .....	English Literature .....	9 to 10.30	Latin .....	1 to 3
			Reading .....	3 to
Tuesday .....	*Arithmetic .....	9 to 11	Composition .....	1 to 3
			Agriculture .....	3 to 5
Wednesday .....	Algebra .....	9 to 11	Botany .....	1 to 2.30
			Greek, or French, or German .....	2.30 to 4.30
Thursday .....	Geometry .....	9 to 11	Physics and Chemistry .....	1 to 2.30
			Physiology .....	2.30 to 4
Friday .....	* Drawing .....	9 to 11		

\* To be taken only by candidates who did not complete, in one of the High Schools of British Columbia, the work prescribed for the Preliminary Course, Junior Grade.

NOTE.—Certificates will not be granted on the recommendation of teachers.

## SCHEDULE B.—INTERMEDIATE GRADE OR SECOND-CLASS CERTIFICATE.

DATE.	SUBJECT.	A.M.	SUBJECT.	P.M.
Monday .....	Geography .....	9 to 10.30	Grecian History .....	1 to 3
	British History .....	10.30 to 12	Reading .....	3 to
Tuesday .....	Latin .....	9 to 12	Composition .....	1 to 3
			Agriculture .....	3 to 5
Wednesday .....			Greek, or French, or German .....	1 to 4
Thursday .....	Geometry .....	9 to 11	Chemistry .....	1 to 3
Friday .....	Algebra .....	9 to 12	English Literature .....	1 to 4

## SCHEDULE C.—SENIOR GRADE OR FIRST-CLASS CERTIFICATE.

DATE.	SUBJECT.	A.M.	SUBJECT.	P.M.
Monday .....	Geography.....	9 to 10.30	Roman History.....	1 to 3
			Reading.....	3 to
Tuesday .....	Trigonometry .....	9 to 12	Composition .....	1 to 3
Wednesday .....	Algebra .....	9 to 12	Latin .....	1 to 4
Thursday .....	Geometry .....	9 to 12	Greek, or French, or German .....	1 to 4
Friday.....	English Literature.....	9 to 12	Physical Science.....	1 to 2.30

## SCHEDULE D.—SENIOR ACADEMIC OR ACADEMIC CERTIFICATE.

DATE.	SUBJECT.	A.M.	SUBJECT.	P.M.
Wednesday .....			Latin .....	1 to 4
Thursday .....			Greek, or French, or German.....	1 to 4
Friday.....	English Literature.....	9 to 12	Education.....	1 to 3

## SCHEDULE E.—THIRD-YEAR COURSE, COMMERCIAL.

DATE.	SUBJECT.	A.M.	SUBJECT.	P.M.
Monday .....	Economics and Civics.....	9 to 11	English Literature.....	1 to 3
Tuesday .....	Arithmetic .....	9 to 11.30	Business Correspondence.....	1 to 3
Wednesday .....	Typewriting .....	9 to	Penmanship.....	1 to 2
			Shorthand Dictation.....	2 to
Thursday .....	Laws of Business.....	9 to 11	Statute Law.....	1 to 3
Friday .....	Accountancy Theory.....	9 to 11	Accountancy Practice .....	1 to 3

Every candidate to be successful must obtain at least 34 per cent. of the marks attached to each subject of examination, and not less than an average of 50 per cent. on all subjects. The fixed standard of marks attached to each subject of examination shall be 100.

## Rules to be observed by Candidates during Examination.

(a.) Candidates must be in their allotted places before the hour appointed for the commencement of the examination.

(b.) No candidate shall be allowed to leave the examination-room within one hour of the issue of the examination paper in any subject; and if he then leave, he shall not be permitted to return during the examination of the subject then in hand.

(c.) No candidate shall be permitted, on any pretence whatever, to enter the examination-room after the expiration of an hour from the commencement of the examination.

(d.) The order to stop writing must be obeyed immediately.

(e.) No candidate shall give or receive assistance of any kind in answering the examination questions. He shall neither copy from another himself nor allow another to copy from him. He shall not take into the examination-room any book, or paper, or slate, or anything else from which he might derive assistance in the examination. He shall neither talk nor whisper. Detection in the breach of these rules shall render the candidate liable not only to the loss of the whole examination

then in progress, but also to the withdrawal or forfeiture of his certificate at any time afterwards, should the discovery be made that these Rules have been broken by him.

(f.) Every candidate shall use the distinguishing number assigned him by the Examiners in place of his name, and shall write this number distinctly at the top of each page of his answer papers. He shall not write his name nor initials, nor any particular sign or mark of identification other than this distinguishing number.

(g.) Candidates, in preparing their answers, shall write only on one side of each sheet.

(h.) Every candidate, before surrendering his answer papers to the Examiners, shall arrange them in the order of the questions; shall fold them twice, neatly and evenly, in the direction of the ruled lines; and shall write the subject of the examination paper on the outside sheet, and his distinguishing number.

(i.) After the answer papers are once handed in, no candidate shall be allowed to make any alteration of any kind in them.

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## PROVINCIAL NORMAL SCHOOLS.

### REGULATIONS AND COURSES OF STUDY.

#### Establishment.

Provincial Normal Schools are situated in Vancouver and Victoria. The Normal School in Vancouver was established in 1901, and that in Victoria in 1915.

#### Courses.

To obtain a life diploma, two courses must be taken:—

- (a.) Preliminary Course; and
- (b.) Advanced Course.

#### Preliminary Course.

This course may be taken during either the Summer Session or the Winter Session. The Summer Session will commence on the Tuesday after Labour Day and continue until two weeks preceding the first Monday in January after New Year's Day. The Winter Session will commence on the second Monday after the New Year and continue in session till the last Friday in June.

#### ADMISSION.

Admission to the Preliminary Course will be granted to a student who holds a Junior Grade Certificate, or any higher certificate from a High School of this Province.

The students of the Normal School shall be required to pass an examination before a Medical Officer appointed by the Education Department before being finally accepted.

#### COURSE OF STUDY.

The work taken up will be of an elementary character.

1. Methods. Instruction in the best methods of teaching all the subjects in the Public School Course of Study:—

- (a.) Critical study, in class, of the prescribed text-books on methods:
- (b.) Lectures:
- (c.) Type lessons by Normal School Instructors and Model School Teachers to classes from the Model School:
- (d.) Practice teaching in the Model School:
- (e.) Essays and exercises:
- (f.) Instruction in the intelligent use of the text-books prescribed for Public Schools.

2. School Management. The School Law of British Columbia.

3. Physical Drill.

#### DIPLOMA.

A student whose attendance, conduct, and proficiency during the Preliminary Course are satisfactory to the Faculty of the Normal School will be recommended for a diploma, and upon approval of the Council of Public Instruction, will receive a Normal School Diploma for the Preliminary Course.

#### CERTIFICATE.

A Third-class Teacher's Certificate, valid for three years, may be granted by the Department of Education on presentation of—

- (a.) Normal School Diploma for Preliminary Course:

- (b.) Non-professional certificates satisfactory to the Department of Education:
- (c.) Certificate of good moral character, and fee of \$5.

### Advanced Course.

This course may also be taken during either the Summer Session or the Winter Session.

### ADMISSION.

Admission to the Advanced Course will be granted to a student who holds a Normal School Diploma for the Preliminary Course. It is strongly recommended, however, that candidates after completing the Preliminary Course should teach at least one year in the Public Schools before entering the Advanced Course.

### COURSE OF STUDY.

The work will include the course of study outlined for the Preliminary Course, but will be more complete and advanced. The following subjects will be taken in addition:—

1. Psychology:
2. History of Education.

A higher standard of proficiency will be required in each subject of instruction, as well as in practical teaching.

### DIPLOMA.

A student whose attendance, conduct, and proficiency during this Advanced Course are satisfactory to the Faculty of the Normal School will be recommended for a diploma, and, upon approval of the Council of Public Instruction, will receive a Normal School Diploma.

### CERTIFICATE.

A Teacher's Certificate, valid for life, may be granted by the Education Department on presentation of:—

- (a.) Normal School Diploma for Advanced Course:
- (b.) Non-professional certificates satisfactory to the Department of Education:
- (c.) Certificate of good moral character, and fee of \$5.

The grade of this certificate will depend upon the non-professional standing of the applicant.

### EXAMINATIONS.

No special examination is held at the end of the session, except in the subject of School Law, but an accurate account is kept of all essays and exercises handed in, and of the criticisms made by the Normal School staff and by the teachers of the Model School on lessons given by students. The general behaviour, attendance, progress, and aptitude of students will also be taken into account in recommending them to the Education Department for diplomas.

### TEXT-BOOKS.

#### *Preliminary Course—*

- Principles and Practice of Teaching—Landon.
- Elementary Composition—Sykes.
- History of Canada—Gammell.
- British Columbia Public School Grammar—Lang.
- English History—Symes & Wrong.
- Dominion School Geography. B.C. Edition.
- Our Home and Its Surroundings—Morang & Co.

#### *Advanced Course—*

- The books used in the Preliminary, and, in addition,—
- Class Management—Bagley.
- History of Education—Any standard work.
- Psychology—Any standard work.

All books issued by the Free Text-book Branch, Education Department, are provided for use of students.

#### EXPENSES.

There are no fees for admission, tuition, or Normal Diploma.

Board can be obtained in private houses in the immediate neighbourhood; a list of such houses may be had on application to the Principal.

Travelling expenses of students at the Normal Schools, calculated at the rate of 5 cents per mile to and from the Institution, will be paid to them by the Superintendent of Education at the completion of the session on the certificate of attendance and mileage signed by the Principal.

#### MANAGEMENT.

1. The regulations of the Education Department shall apply to the teaching staff of the Normal School, subject to any changes that may be made by the Council of Public Instruction from time to time.

2. The Principal of the Normal School shall be responsible for the discipline and management of the students. He shall prescribe the duties of the staff, subject to the approval of the Council of Public Instruction. The staff shall carry out the instructions of the Principal with regard to discipline, management, methods of study, and all matters affecting the efficiency of the Normal School and the progress of the students.

3. The Principal of the Normal School shall have supervision over the methods employed in the Model School in teaching the course of study prescribed by the Education Department.

4. Students shall attend regularly and punctually throughout the session and shall submit to such discipline and direction as may be prescribed by the Principal.

5. Students shall take all examinations prescribed by the Principal. Such examinations will be conducted by the staff of the Normal School. The examiners shall have power to reject any candidate who shows deficiency in scholarship.

6. The students of the Normal School shall be required to supply themselves with a complete set of the books authorized for use in the Public Schools of the Province (except those issued by the Free Text-book Branch), in addition to the special textbooks prescribed for use in the Normal School.

7. No student shall lodge or board at any house disapproved of by the Principal.

8. If, in the judgment of the Faculty of Instructors, the capacity, attainments, or progress of any student are not such as to warrant his or her longer attendance at the Provincial Normal School; or if in their judgment the manners, habits, temperament, sentiment, or character of the student are not such as to fit him or her to have charge of children, it shall be the duty of the Principal to report such judgment to the Superintendent of Education, who, on being satisfied of its correctness, may require such student to withdraw from the Institution.

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## NIGHT SCHOOLS.

(UNDER SECTIONS 127, 128, AND 129, "PUBLIC SCHOOLS ACT.")

A portion of the instruction provided in any school district may, if deemed desirable by the Board of School Trustees, be through the medium of night schools, subject to the following regulations:—

1. Night schools are public schools under the immediate charge of the Board of School Trustees, just as are the day schools, except that the sessions are held at night. No night schools shall be started by a School Board, however, without the approval of the Council of Public Instruction, nor where they will directly or indirectly interfere with the efficient administration of the day schools. The regulations for the government of day schools shall, as far as possible, apply to night schools established under sections 127, 128, and 129, "Public Schools Act."

2. Night schools shall be for the free instruction (in the ordinary branches of an English education) of persons of the age of fourteen years and upwards who may be debarred from attendance at the day schools. No person shall be admitted who could conveniently attend a day school.

3. Any such night school shall be in session two hours. The prescribed register shall be kept, and the regular monthly and annual reports made in the form directed by the Superintendent of Education.

4. The prescribed text-books shall be used in night schools, and those on the free list shall be supplied in the same manner as for day schools.

5. Night schools shall be graded according to the attainments of the pupils, but owing to the diversified attainments of the persons likely to seek admission, the Council of Public Instruction does not think it expedient to lay down a precise course of study. The Act under which night schools are established contemplates only "the ordinary branches of an English education," and the Council directs teachers to place chief stress on these, particularly on reading, writing, arithmetic, drawing, and composition (including letter-writing). In mining and agricultural districts, informal lessons on elementary science may profitably be given.

6. No portion of the cost of maintaining night schools shall be paid from the Provincial Treasury, unless taught by the holders of Provincial Certificates or other certificates acceptable to the Council of Public Instruction. In all cases the Council would greatly prefer that the teachers of night schools should be other than teachers of day schools; but where this may not be practicable, the Board of School Trustees may permit the teacher of a day school to teach four evenings in the week.

## CORRESPONDENCE COURSES IN ARITHMETIC, COAL-MINING, AND SURVEYING.

For some years past the Department of Education has conducted night schools for men engaged in the coal-mining industry in order to provide the requisite training for the examinations held by the Department of Mines.

The conditions of the shift system under which miners work have hitherto militated against the complete success of the venture. With a view to overcome this difficulty, as well as to bring the opportunity of advancement within reach of a greater number of men, it has been decided to conduct the classes through the medium of correspondence.

The proposed courses of study will, as before, consist of subjects having a direct bearing on the work which must be mastered by those who seek certificates as shot-lighters, overmen, and mine-managers.

A preparatory course leading up to the examinations referred to will also be provided for boys who have just left day school to engage in work at the mines. It is thus hoped during the waiting or probationary period, which closes at the age of twenty-three, not only to give these lads valuable training, but also to foster their ambition for promotion to responsible posts.

Six courses are provided, as follows:—

No. 1. Preparatory Mining Course for boys who have left School.

Section A	}	- - \$5 per section.
.. B		
.. C		
.. D		
.. E		
.. F		- - \$10.

No. 2. Preparatory Course in Arithmetic..... \$10

No. 3. Course for Fireboss, Shiftboss, or Shotlighter's papers  
(Third Class) ..... \*15

No. 4. Course for Overman's papers (Second Class) ..... 25

No. 5. Course for Mine Manager's papers (First Class) ..... 35

No. 6. Course in Mine Survey work ..... 35

All fees payable in advance. For full particulars write for Bulletin No. 2, Department of Education, Technical Branch.

## SCHOOL LIBRARIES.

Under authority of section 117: "Whenever a Board of Trustees shall set aside a sum of money for the purpose of establishing a library or adding thereto, there may be granted from the Provincial Treasury a sum equal to one-half the sum so set aside, not to exceed fifty dollars in any one year, to be expended in the purchase of books therefor."

### Regulations respecting School Libraries.

1. No book hostile to the Christian religion or of an immoral or sectarian character shall be permitted in the school library.

2. The Trustees shall hold school libraries in trust as a part of the school property of the district, shall provide a suitable book-case or book-cases, and shall make such regulations for the preservation and circulation of the books as they shall deem necessary.

3. Until the Council of Public Instruction has prepared and published a list of books for such libraries, Trustees purchasing books with school funds shall first send to the Superintendent of Education for approval a list of the proposed books, their publishers and prices.

4. The grant made by the Council of Public Instruction, under the provisions of section 117, shall be paid, on the presentation of the invoice or invoices of books purchased and the certificate of the Secretary of the School Board, as follows:—

"I hereby certify that the books referred to in accompanying invoice (or invoices, as the case may be) have been purchased for the School Library of \_\_\_\_\_ District (or Assisted School) during the present school-year."

.....  
"Secretary of School Board."

NOTE.—The Provincial grant, as well as the amount raised by the district, must be expended in books. The amount of grant is, therefore, one-half the amount of money expended as shown by the invoice or invoices. It is recommended that no balance be left unexpended at the end of the school-year.

The following regulations for the management of school libraries are recommended for adoption by School Boards (unless formally adopted by the Trustees at a regular meeting, the rules in regard to fines shall not be enforced):—

### Rules for School Libraries.

(a.) Under the direction of the Secretary of the School Board, the principal or teacher of the school shall be the librarian, shall have charge of the library, keep a catalogue of all books in a book to be provided for that purpose, and shall disburse all library funds placed at his disposal by the School Board.

(b.) The books shall be covered with stout paper. Each volume shall be numbered on the back of cover. On the inside of the front cover shall be pasted a written or printed label giving the number of the book and the name of the district or school. The books should be kept (when not loaned to readers) in a suitable book-case, under lock and key, provided by the Trustees; glass doors are recommended. It is also recommended that a dictionary for reference form part of the equipment, and that it be kept outside the library; all pupils above the junior grade should know how to use it and should be accustomed to refer to it.

(c.) Each book loaned should be entered by the librarian in a book to be provided for that purpose, as in the following form:—

Date of Delivery.	No. of Book Delivered.	To Whom Delivered.	When Returned.	Condition when Returned.	Fine for Detention.	Fine for Injury.	When Paid.

(d.) A book loaned to a member of a family in which infectious disease has broken out should not be returned to the library, but its value should be promptly paid and a new book obtained.

(e.) No person shall be allowed to have more than one volume at a time, or to retain the same longer than two weeks; nor shall any person who has incurred a fine by these regulations receive a book while such fine remains unpaid.

(f.) On the return of every book to the library, the librarian shall examine it carefully to ascertain what injury (if any) has been sustained by it, and shall charge the amount of the fine accordingly.

(g.) The following fines shall be assessed by the librarian as herein provided:—

1st. For detaining a book beyond two weeks, 5 cents a week.

2nd. For the loss of a volume, the cost of the book, and if one of a set, an amount sufficient to purchase a new set.

3rd. For a leaf of the text torn out or lost, or so soiled as to rendered it illegible, the cost of the book; or if one of the set, the cost of the set. In either of the above cases the person paying the fine shall be entitled to the book or set so injured.

4th. For any injury beyond ordinary wear, an amount proportionate to the injury, to be estimated by the librarian, subject to revision upon appeal by the Board of Trustees.

5th. Whenever any book shall not be returned within six weeks from the time it was loaned, it shall be deemed to be lost, and the person so detaining it shall be charged with its cost.

(h.) All books belonging to the library shall be called in and placed in the book-case during the last week of the term, and no book shall be loaned during vacation.

(i.) On the last Friday of each term the librarian shall make out and forward to the Secretary of the School Board a statement showing the number of volumes lost during the term and the amount of fines collected, the number and cost of the books purchased during the term, together with such other facts and suggestions as may be of interest to the Trustees and ratepayers. This statement should be kept on file by the Secretary for future reference. In case of a librarian leaving a district before the end of a term, he shall, before leaving, submit to the Secretary of the Board a report as above indicated.

(j.) It shall be the duty of the teacher, before assuming charge of the school library at any time, to ascertain whether or not the number of volumes in the library and their condition correspond with the last report to the Secretary of the Board and with the librarian's book left by his predecessor. In case of his finding any discrepancy, he shall report the same in writing to the Secretary of the Board.